Dissertationes Forestales 20

A capability-based view of organisational renewal: combining opportunity- and advantage-seeking growth in large, established European and North American wood-industry companies

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Academic Dissertation

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A capability-based view of organisational renewal: combining opportunity- and advantage-seeking growth in large, established European and North American wood-industry companies

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ABSTRACT

The purpose of this study was to extend understanding of how large firms pursuing sustained and profitable growth manage organisational renewal. A multiple-case study was conducted in 27 North American and European wood-industry companies, of which 11 were chosen for closer study.

The study combined the organisational-capabilities approach to strategic management with corporate-entrepreneurship thinking. It charted the further development of an identification and classification system for capabilities comprising three dimensions: (i) the dynamism between firm-specific and industry-significant capabilities, (ii) hierarchies of capabilities and capability portfolios, and (iii) their internal structure. Capability building was analysed in the context of the organisational design, the technological systems and the type of resource-bundling process (creating new vs. entrenching existing capabilities). The thesis describes the current capability portfolios and the organisational changes in the case companies. It also clarifies the mechanisms through which companies can influence the balance between knowledge search and the efficiency of knowledge transfer and integration in their daily business activities, and consequently the diversity of their capability portfolio and the breadth and novelty of their product/service range.

The largest wood-industry companies of today must develop a seemingly dual strategic focus: they have to combine leading-edge, innovative solutions with cost-efficient, large-scale production. The use of modern technology in production was no longer a primary source of competitiveness in the case companies, but rather belonged to the portfolio of basic capabilities. Knowledge and information management had become an industry imperative, on a par with cost effectiveness. Yet, during the period of this research, the case companies were better in supporting growth in volume of the existing activity than growth through new economic activities. Customer-driven, incremental innovation was preferred over firm-driven innovation through experimentation. The three main constraints on organisational renewal were the lack of slack resources, the aim for lean, centralised designs, and the inward-bound communication climate.

Keywords: corporate entrepreneurship, organisational change, social networks, formal structure, knowledge processes, forest industry

PREFACE

First of all, I wish to warmly thank all my past and present colleagues at the Department of Forest Economics for truly amicable working conditions, good advice and energising discussions over the years. I am particularly indebted to my supervisor, Professor Heikki Juslin, who always found time to comment on my texts. I would also like to express my thanks to Dr. Juha S. Niemelä for all his encouragement and efficient administrative effort in getting the project started.

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I reserve my deepest gratitude for my parents, my sisters and their families, and Jon.

Author

Helsinki, May 2006

LIST OF ORIGINAL ARTICLES

This dissertation includes the following separate sub-studies, which are referred to by Roman numerals in the text as follows:

I Korhonen, S. and Niemelä, J.S. 2004. Guidelines for sustainable, external corporate growth: a case study of the leading European and North American wood-industry companies. Journal of Forest Products Business Research 1. [Online journal]. Available from: http://www.forestprod.org/jfpbr-online.html

II Korhonen, S. and Niemelä, J.S. 2005. A conceptual analysis of capabilities: identifying and classifying the sources of competitive advantage in the wood industry. The Finnish Journal of Business Economics 54: 11-47.

III Korhonen, S. 2005. Diversity or efficiency: structural premises for knowledge processes in established, large companies. Submitted manuscript.

IV Korhonen, S. 2005. A capability-based view on organisational renewal: maintaining long- and short-term potential for growth in large, established companies. Submitted manuscript.

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Silja Korhonen was the first writer of all the articles listed above. Articles I and II were co-authored by Juha S. Niemelä. Korhonen provided the study idea and the theoretical frame, collected and analysed the data, and wrote the article. The authors jointly revised the manuscripts.

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INTRODUCTION

"The pursuit of any strategy will produce unintended consequences or will result in a likely reduction of some other desired state or objective. Thus, every decision involves a trade-off between mutually desired states and objectives… managers must reconcile the paradoxical relationships and establish some middle-ground strategies that maximise each. Those who study organizational paradoxes such as these do not believe that they ever can be resolved, only managed. But managing requires establishing of some kind of balance or a conciliatory position between two potentially contradictory points." (Jaffee, D. Organization Theory: Tension and Change. 2001, p.40.)

The competitive landscape of the 1990s, and managerial responses

According to the basic contingency thinking that pervades strategic-management theories, managerial practice should fit in with the environmental situation. Western companies' responses to the environmental turbulence of the 1990s varied from a super-expansive strategy to an emphasis on short-term operational results (Drejer 2004, O'Regan and Ghobadian 2004, Hitt et al. 2002). At the beginning of the decade, the business environment was driven by information technology (most notably the emergence of the Internet), recognition of the importance of knowledge and the knowledge economy, the discarding of traditional business modes and management ideas, and substantial growth in risk-willing international venture capital (Drejer 2005, Wikström and Normann 1994). Companies responded by investing in the business development of external entrepreneurs and firms, and the managerial focus was more often on the capital market than on the market for goods and services. This resulted in much larger growth rates than were possible by focusing on internal business development (Drejer 2005, 2004).

When the IT bubble burst, and the expected growth and profit rates could no longer be delivered, business development and creation in Western companies was replaced by the general pressure to 'show a profit now'. This resulted in selling non-core companies in corporations, relocating and outsourcing activities to low-cost regions, delaying major investments, prolonged bans on recruiting, pay-cuts and bonus reduction, and a top-management focus on short-term results and reports (Drejer 2004). Large, established companies started to disassociate themselves from visionary, entrepreneurial leaders. They chose to hire managers who could ensure stakeholders that nothing unexpected was going to happen, and that costs were under control. Drejer (2004) refers to the period as the old economy's delayed response to the challenges of the new economy. Consequently, companies had to compete on price and costs with few opportunities for differentiation. As most Western companies still operate on terms of the high-cost regions, this is a self-destructive strategy in the long run.

Thus, their next true challenge is to improve in terms of innovative business development, but at the same time to maintain the efficiency of current operations (Drejer 2005, 2004).

The pressure for change in large wood-industry companies

Emerging high-tech industries captured the headlines in the 1990s, but the basic industries felt the same need to rethink their strategies. One of the prime examples was the wood industry, whose special features imposed strategic challenges (Sande 2005).

The industry is old, and many of the largest companies can trace their roots back to the 19th century. Heavy raw-material costs, decreasing product prices, and more often than not the fibre supply of paper production define the framework of the business. The manufacturing is based on heterogeneous raw materials (consisting of various tree species of different diameters), and the usage of wood resources is frequently in conflict with other forest functions, such as recreation, carbon sequestration and wildlife preservation. The increased focus on environmental values has changed forest-management practices, and certification and ecolabelling shape the image of the industry. The forest sector is often heavily regulated by governments, and NGOs have an interest in influencing the decision making. The value chain consists of distinctive industrial activities – from silviculture and harvesting to sawmilling, planing, and construction. A mature-industry mindset is common among investors and forest-industry practitioners, and the business has traditionally been strongly cyclical. Despite the strong pressure to consolidate, the industry is still fragmented and rurally based.

The turn of the new millennium was characterised by economic instability in the wood industry. After strong growth and increasing demand for forest products, the North American and European economies slowed considerably. A price collapse hit the structural-panel markets in North America and Europe in 2000, and despite strong domestic and export demand, European sawnwood prices decreased. Overcapacity became a serious problem, demand then declined, and many wood-industry companies suffered from a profitability crisis that has not eased up. Table 1 summarises some of the trends in the late 1990s.

Roadmap 2010[i] analyses the market environment of the European woodworking industries in detail. The business is highly competitive, and the pressure originates from low-cost regions such as South America, Russia and Eastern Europe that enforce Western companies to continuously improve efficiency, and also to move their production to these regions. One of the main messages is that the customers for primary products (distribution and industrial end-users) are becoming increasingly sophisticated. Many wood-industry companies are part of the value chain of major global players, and their customers expect them to take the responsibility for continually innovating and even creating new needs in the market. For the customers, wood is just one material among others. They expect high quality, shorter lead times, and customised, innovative offerings at competitive prices. It is also suggested that customers prefer suppliers with a large geographical coverage and that grow bigger with them.

Table 1: Wood-industry trends in the late 1990s

Sawnwood industry

- Sawnwood was produced in fewer but larger mills
- Sawmills were closed to prevent oversupply, maintain prices, gain efficiencies of scale, and to enable new technologies to be implemented in new mills
- Fencing (also in sound barriers) and decking became high-demand products
- There was a movement away from commodity goods to more downstream processing and value-addition, especially in Nordic Europe
- There was a growing need for Nordic Europe to import logs from the Baltic States and Russia to feed European demand for sawn softwood
- The sawmilling business internationalised and the raw-material supply became increasingly inter-regional

Panel industry

- Turnover in capacity occurred as newer, high-capacity plants drove out older, smaller operations with higher unit costs
- Plywood faced increasing competition from OSB in structural applications, and from MDF in furniture
- OSB and MDF capacity continued to expand
- Plywood imports to Europe brought about increased change in market share as North American plywood was substituted by cheaper Brazilian elliotis pine plywood

Engineered Wood Products

- New products started to replace the traditional sawnwood used in construction and furniture; EWPs in the United States continued to gain market share from dimension lumber
- In North America, the two driving forces behind EWP consumption were the prevalence of wood-frame construction and the changing nature of softwood fibre supply
- Building codes all over the world were switching to performance-based codes, meaning that, unlike with the old product-based codes, builders, architects and specifiers could take full advantage of the EWP properties
- The industry structure was becoming even more concentrated (e.g., one company produced half of the LVL and I-beams produced in the United States), glulam production being the exception

Source: UN/ECE Timber Committee, Forest Products Annual Market Reviews 1998–1999, 1999–2000, 2000–2001, 2001–2002

Thus, it seems that the largest wood-industry companies would have an opportunity to create competitive advantage due to their size. Large companies have a wide geographical scope, they have more resources to fund innovation, and their customer base connects them to a wide network that can be used in market sensing (Ahuja and Lampert 2001). Their size gives them increased negotiation power, the ability to serve customers better, access to low-cost capital, the capacity to experiment with new ventures at less risk, and eventually, more potential for bringing innovation to scale. The profitable engagement of large companies in innovative activities is crucial not only in terms of the individual firms but also for the development and vitality of the whole wood industry (Mauno et al. 2006, Alajoutsijärvi and Tikkanen 1999).

Yet, it is very challenging to revolutionise practices in the biggest wood-industry companies. The business development of these firms often goes hand in hand with the needs of the paper industry. They seldom have the willingness or reason to sacrifice their resources to development projects in order to benefit regional or national industry clusters. The role of the follower is often less risky, and experimentation is not easy to combine with scale advantages in production. It is often difficult for large companies to offer individual employees incentives for entrepreneurial thinking. Further, the demands may be changing in the future, but the wood-industry customers have traditionally been almost hostile to too much novelty. If the largest companies could realise their potential to become the forerunners in the wood industry, these problems should be overcome.

According to Roadmap 2010, attempts to add a wider product-line portfolio are likely to increase among the largest companies in the wood industry. The future drivers of consolidation will thus be not only scale advantages and low cost, but also the pressure to build up resources for research and development and to provide innovative system solutions. Historically, consolidation has occurred within a product line, resulting in bigger volumes of the same product. The panel industry, however, has seen some vertical and horizontal integration and clustering. It is getting riskier in highly-competitive, dynamic markets to adopt a wait-and-see approach, and to leave innovation responsibility to smaller companies, possibly operating in other industries.

In practice, Roadmap 2010 thus implies that the largest companies in the industry would have *to grow further while simultaneously maintaining scale efficiencies and generating innovative offerings*. The practice has shown, however, that this is a difficult objective to achieve.

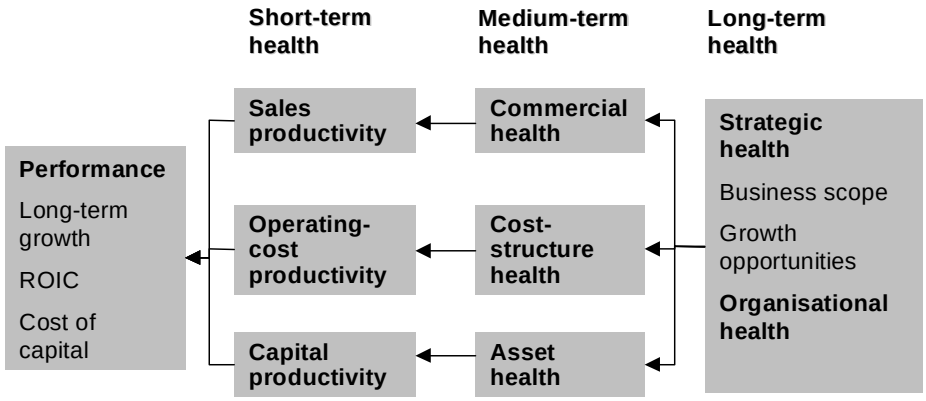
The problem of sustained, profitable growth in large, established companies

The growth objective and its profitable implementation is a source of controversy in large companies. Porter (1996), for example, warned managers of how efforts to grow blur uniqueness, create compromises and ultimately undermine competitive advantage. High growth may disrupt established routines, and uncertainties about cause-and–effect relationships may surface (Hitt et al. 2001). Nevertheless, growth remains a major theme in both economics and management studies, and for most large companies and their stakeholders it is associated with success. One reason for this is that growth is thought to imply innovativeness and an entrepreneurial drive.

Yet, whereas growth often indicates innovativeness and an entrepreneurial mindset in new ventures, it is not necessarily so for larger and more mature companies (Davidsson et al. 2002). In large, established firms it may originate from effective co-ordination and loss prevention, rather than supporting renewal and innovation (Hitt et al. 2002). Thus, not all growth is entrepreneurial. When a company grows as a result of creating new activities, the growth is a reflection of its entrepreneurship. It follows that, at the very least, entrepreneurial growth occurs when an established firm introduces what internally is a new activity that makes it bigger and appears at the same time as a new imitator to a market (Davidsson et al. 2002). At the other extreme is the global introduction of a radical innovation.

Sustained growth is thus a two-dimensional phenomenon: the quality of the discovery (how radical a break with current activities is and how large a relative advantage it creates) indicates the growth potential, and the quality of the exploitation determines how much of

that potential is realised (Davidsson et al. 2002). Current growth through a genuinely new economic activity holds the potential for future volume growth based on that activity. Following this thinking, Hart (1992) pointed out that business performance consists of two dimensions, growth/share in existing business (e.g., sales growth and market share) and indicators related to the future positioning and growth of the firm (e.g., new-product development and diversification). Figure 1 illustrates how the factors influencing successful, profitable growth could be further divided into a complex web of short-, medium- and long-term contributors.



Source: adapted from Dobbs and Koller 2005

Figure 1 : Contributors to profitable growth

As mentioned above, the future challenges for Western firms include restoring the balance between innovative, long-term business development and the short-term approach that is often related to operational effectiveness. In this, the metrics of the firm's long-term health are of special interest (Figure 1). These indicators are typically intended to capture the capabilities of a company, its ability to retain its employees, its culture and values, and the depth of its management talent (Dobbs and Koller 2005). They show the ability of an enterprise to sustain its existing operating activities in order to ensure volume growth, and its potential to identify and exploit new areas of growth.

The balance between long- and short-term growth potential is also highlighted in recent academic discourse aiming at integrating entrepreneurial and strategic thinking. Traditionally, research on entrepreneurship has focused on the search for competitive advantage through innovation, whereas strategic management calls for firms to establish and exploit their competitive advantage within a particular environmental context (Hitt et al. 2001). In other words, entrepreneurship is focused on creation and opportunity recognition, whereas strategic management is about ensuring performance and competitive advantage.

At the interface of entrepreneurial and strategic thinking lie corporate entrepreneurship (CE) and the emerging field of strategic entrepreneurship (SE). CE is focused on explaining how opportunity recognition and the development of new businesses occur within existing organisations, while SE is a related concept in which the emphasis is on finding a balance between opportunity- and advantage-seeking behaviours (Ireland et al. 2003).

The resource-based view of the firm (RBV) and its offshoots – the knowledge-based view of the firm and the organisational-capabilities approach – are the dominant contemporary approaches to strategic management. Organisational renewal is the form of CE in which entrepreneurship and resource-based management most evidently meet. It involves the business (legally or economically defined) altering its resource patterns to achieve better and sustainable overall economic performance (Stopford and Baden-Fuller 1994). Optimal growth in a firm requires balancing the exploitation of existing resources and developing new ones (Penrose 1959, Wernerfelt 1984). The advances in this line of thinking and its application to business research centre around the concept of capabilities.

Capabilities shift the focus from static resource stocks to complex interaction and co-ordination between various resources. They direct attention to innovation and entrepreneurship as sources of sustainable competitive advantage. On the one hand, they are indicative of the firm's existing resource base, and represent what it can currently do in order to implement its objectives. On the other hand, they are used in developing the resource base further, and they influence the development of future capabilities. Capabilities are thus a by-product of past activities, but what really matters is the range of prospects they make possible.

The need for the present study

In sum, it is evident that the basic question of *'how to generate sustained, profitable growth in an increasingly complex and unpredictable environment'* remains at the top of the management agenda in large, established companies. As these companies are the potential pioneers in their industries, their business solutions and growth outlooks may prove crucial for industrial development, in general.

The relevance to entrepreneurship and the organisational-capabilities approach to management

Growth and wealth creation are interrelated. Because of changes in technologies, consumer preferences, regulations and other market shifts, companies must reconfigure their capability portfolio continuously in order to succeed in their quest for profitable, long-term growth (Bergman et al. 2004).

This issue is of special interest within the spheres of CE and SE with their focus on the challenges of recognising opportunities and developing new business in established firms, the conflict between the new and the old, and overcoming the inevitable tensions that such conflict produces for management (Hitt et al. 2001). The notion of CE has been acknowledged for a number of years (e.g., Zahra et al. 1999, Stopford and Baden-Fuller 1993), but relatively little field research has been conducted in other than high-profile firms with a long history of innovation, such as 3M, Nokia and Toyota (Thornberry 2003). Clearly, the approach needs to be tested and developed in the context of large, established companies that have a great need for entrepreneurial action but traditionally little experience of it. With regard to SE, Hitt et al. (2002) recommend the conducting of further research on how to combine the growth of existing and new economic activities, i.e. opportunity- and advantage-seeking behaviours. Recent research has revealed the need for additional qualitative studies in order to further clarify the role of organic and mechanistic organisational antecedents in this context (Volberda 2004, Birkinshaw and Gibson 2004).

CE and SE research is increasingly sharing common ground with the resource-based view of the firm (RBV) and its offshoots – the knowledge-based view of the firm and the organisational-capabilities approach (e.g., Floyd and Woolridge 1999). Knowledge is often mentioned as the ultimate resource in terms of bringing competitive advantage to a company (e.g., Grant 1996), and knowledge management and tacit knowledge are among the most rapidly growing research areas in corporate management (Bergman et al. 2004). Haas and Hansen (2005) emphasise the fact that research focus should be on how companies use what they know rather than on how much they know. Foss (2003), in turn, criticises capabilities collectivism, and calls for research that explains the link between macro-outcomes (i.e. firm-level value creation) and their micro-foundations.

There is thus a need to strengthen the link between research on organisational knowledge and research on organisational capabilities. Capabilities could be interpreted as knowledge of how to do things on the company level, which arises from the integration and co-ordination of specialised, individual knowledge (Loasby 1998, Grant 1996, Kogut and Zander 1992). In other words, what is of interest is how utilising and obtaining knowledge and other resources on the individual level translates into corporate capabilities and capability portfolios.

The concepts of resources, capabilities and core competencies are increasingly attracting attention of managers, but the tools for analysing and understanding their complexity are sparse, and the application of organisational capability to decision-making is still unclear (e.g., Volberda 2004, Grant 1998). O'Regan and Ghobadian (2004) call for studies on the mechanisms that enable the effective reconfiguration of resources, while Ireland et al. (2003) mention the need to determine how managers optimally structure the capability portfolio and bundle resources into capabilities. In his recent article, Jacobides (2006) describes a research programme on the architecture and design of organisational capabilities. The programme covers the way in which the structure of an organisation (and its internal and external boundaries) affects its efficiency, and the way in which it can

discover and generate new knowledge and develop new capabilities. Specifically, he suggests that

> *"through the detailed analysis of capabilities, their architecture, and their interactions, we can examine how the firm's structure allows it to canalize its expertise and develop new knowledge, products or markets"* (Jacobides 2006: 164)

In support of this, Atuahene-Gima (2005) encourages further research on organisational designs and processes that would ensure appropriate levels of interaction between the refinement and extension of existing capabilities and experimentation with new alternatives.

In sum, there is a need for a study that applies the organisational-capabilities approach to the management of organisational renewal, and acknowledges that an organisational capability has its roots in the experiences and knowledge of the individual members of an organisation.

The relevance to the forest business

Applying the CE and SE perspectives and the organisational-capabilities approach to forest-business research meets both the theoretical and the practical needs of the forest sector. As global competitiveness in manufacturing industries has become a critical policy issue at national and regional levels, innovation and entrepreneurship research within the forest business has been revived. Specific topics include organisational innovativeness (e.g., Wagner and Hansen 2005, Fell et al. 2002), new-product development and R&D processes (e.g., Bull and Ferguson 2005, Nakamura et al. 2005), and innovation systems (e.g., Kubeczko et al. 2005). The report by Bullard (2002) on the business-concept innovation in the furniture industry is a prime example of recent guidelines for forest-sector development.

Another stream of research has emerged alongside innovation-focused studies in the search for systematic understanding of forest-industry recipes and management logic in the changing environment. Without dismissing the importance of innovation, it has called for strategic pluralism instead of exclusivism. Lamberg (2003) emphasises the importance of flexibility in the global corporate strategy, but there is the same requirement to tread a fine line between efficiency and experimentation on the level of the individual business unit, function and department. Organisational design and processes are increasingly under scrutiny in attempts to rejuvenate the forest industry. Alajoutsijärvi and Lilja (1998) and Alajoutsijärvi and Tikkanen (1999) discuss the need for multifunctional business logic in the forest business: this requires acknowledging the importance of the informal organisation, including communities of practice, local cultures and social networks. Similarly, Laurila and Lilja (2002) call for studies that are sensitive to the indeterministic nature of corporate development resulting from interaction between formal design and social communities.

Finally, as Roadmap 2010 implies, the largest companies in the wood industry need to grow further while simultaneously maintaining scale efficiencies and generating innovative offerings. There is a need for a study that examines how such companies are preparing to implement this dual aim, and clarifies the link between the broad recommendations of the Roadmap and managerial considerations.

PURPOSE AND IMPLEMENTATION

Purpose

The purpose of this study is to strengthen the understanding of organisational renewal and how it is managed in large, established companies aiming for sustained, profitable growth. Organisational capabilities are used as the conceptual basis of the analysis, and tools are developed to facilitate empirical research. The focal theoretical assumption is that in order to achieve sustained, profitable growth, a company is able to maintain competitive advantage in the long run by combining entrepreneurial and strategic thinking, i.e. opportunity- and advantage-seeking behaviour. The empirical aim was to investigate how established, large-sized European and North American wood-industry companies interpreted and implemented their growth objectives through capability building.

The four separate sub-studies included in this dissertation investigate and answer the following specific questions concerning (i) the objective for sustainable, profitable growth and (ii) how this is realised and implemented in the companies in question (Table 2)

Table 2: Research questions and aims of the study

The overall research question: *How do established, large-sized European and North American wood-industry companies interpret and implement their objective for sustainable, profitable growth?*

Sub-study	Empirical aim	Theoretical aim	Research questions
I	Investigating the change in and implementation of the growth objective in wood industry-companies	Contributing to the understanding of the various dimensions of the growth concept	What kind of growth focus and mode best contributes to long-term competitive advantage? What are the prerequisites for growth that best contribute to long-term competitive advantage?
II	Exploring and explaining the content and dynamics of the prevailing capability portfolios of wood-industry companies.	Clarifying the interplay between firm-internal and firm-external factors in the development of capability portfolios Enhancing the understanding of the mechanisms by which capabilities contribute to the competitive advantage of a company	What kind of classification systems of capabilities best reflects their contribution to the competitive advantage of a company and the dynamics of the capability portfolio? What kind of capability portfolio prevails in the leading wood-industry companies and why?
III	Providing structural guidelines for knowledge management in large-sized, established companies operating in mature industries, namely the wood industry	Analysing the internal structure and development of capabilities Enhancing the understanding of how changes in formal, hierarchical organisational design affect diversity and efficiency of knowledge processes in capability building	How do changes in formal, hierarchical design affect the diversity in knowledge search (exploration) and the efficiency of knowledge transfer and integration (exploitation)?
IV	Contributing to the understanding of sustainable growth and organisational renewal in large established companies	Developing further the capability-based view on analysing value-creating growth in the changing environment	What are the complementarities and links between different research streams in the analysis of growth and organisational renewal? What kind of growth strategy would be required to sustain competitive advantage in large established companies? How could this strategy be implemented?

Implementation

Figure 2 illustrates the implementation process.

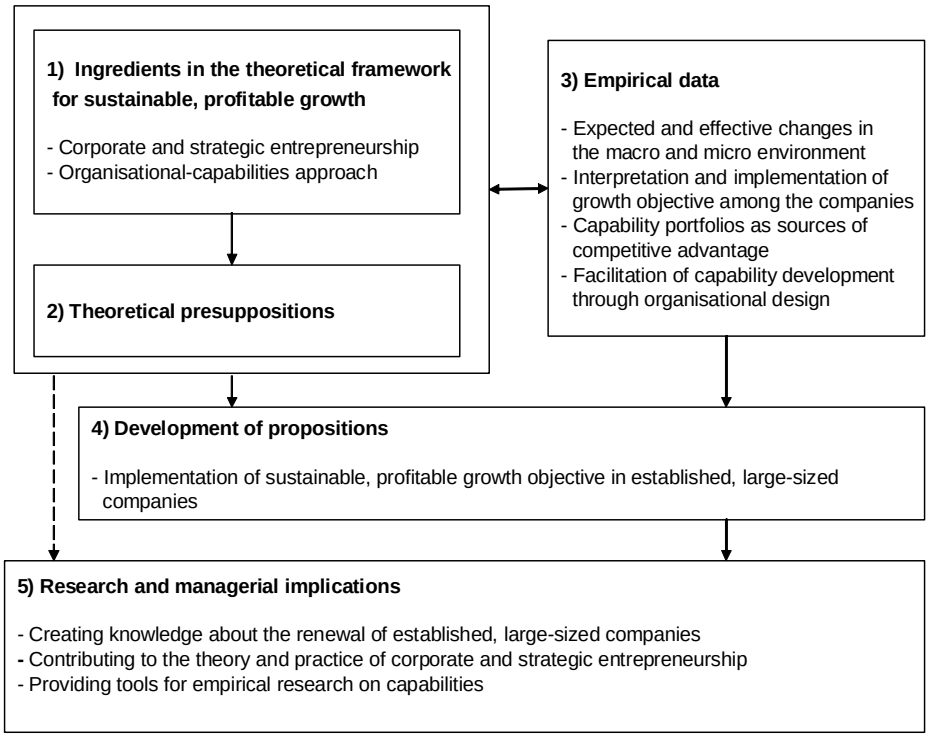


Figure 2: Implementation of the study

The five stages in the implementation process were as follows corresponding to the numbers in Figure 2:

1. The constructs of corporate and strategic entrepreneurship, and the organisational-capabilities approach to strategic management were reviewed, and their theoretical roots traced to the resource-based view, the knowledge-based view, organisational learning and the network approach. Their contributions to the analysis of organisational renewal and growth were assessed, and possible gaps in existing knowledge identified.

2. The relevant concepts and theories were brought together, constructs defined and the theoretical presuppositions (in the form of a framework) were formulated. The achievement of sustainable, profitable growth was seen in terms of (i) the growth objective, and (ii) the structures and dynamics behind the development of a capability portfolio and individual capabilities.

3. Empirical research, based on a multiple-case study, was carried out in order to investigate interpretation of the sustainable, profitable growth objective and its implementation through capability building in the light of the changes in the macro and micro environment of the case companies.

4. Propositions concerning sustainable, profitable growth and its implementation in established, large-sized companies were developed for each sub-study through the consolidation and iterative comparison of the theoretical presuppositions with the empirical observations. The empirical data (the cases) was used to elaborate the meanings, and to reconceptualise, and extend the coverage of the existing theories.

5. The research and managerial implications were considered in terms of (i) creating knowledge about organisational renewal in established, large-sized companies aiming for sustainable, profitable growth, (ii) contributing to the theory and practice of corporate and strategic entrepreneurship, and (iii) providing tools for empirical research on capabilities.

The aim of the four sub-studies was to deepen understanding of the implementation of the growth objective through capability building. The first one lays the foundations for the next two. Objective for sustainable corporate growth is defined, and the growth strategies and their implementation in the wood-industry companies are described. The second sub-study focuses on the role of the capabilities in the implementation of the growth objective, and describes the capability portfolio of the companies. The third one concerns the development of individual capabilities, and turns the attention to the context-bound knowledge-search, -transfer and -integration processes that are at the root of capability development. It investigates how organisational design affects the firm's explorative and exploitative behaviour, and thus its ability to renew itself through capability building. The fourth and final sub-study presents a synthesis of the theoretical considerations of the previous three, focusing in more detail on the assumption that firms should find a balance between opportunity- and advantage-seeking growth.

THEORETICAL BACKGROUND

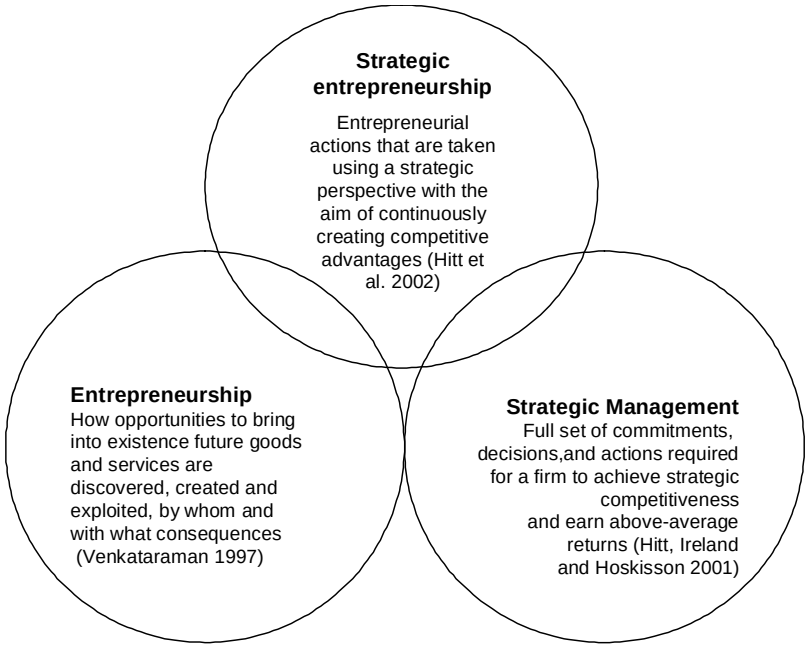
Corporate entrepreneurship and strategic entrepreneurship

According to the founding scholars of the discipline, strategic management accommodates two distinct, but equally important tasks (e.g., Drucker 1964, Chandler 1962). The first one involves co-ordinating, preserving and supervising the use of existing resources (administrative management), and the second one is about identifying opportunities and taking the firm in new directions with new capabilities, products or markets (entrepreneurial management). As Michael et al. (2002) noted, the two tasks have increasingly been separated, and the most significant achievements in both theory and practice have been in administrative management. The current paradigms in strategic management again highlight the dynamic nature of organisations, and the need for them all to be entrepreneurial regardless of age and size (ibid.). It is particularly difficult for a large, established company to fulfil this requirement. Some of the new business ideas may limit the value of its current offerings, and put at risk its proven success in favour of something unproven with potential (Ireland et al. 2003). Yet, identifying opportunities is essential for maintaining the long-term potential for growth and wealth creation.

Corporate entrepreneurship (CE) is about adopting the mindset and the skills of a start-up entrepreneur and integrating these characteristics into the culture and activities of a large company. According to Sharma and Chrisman (1999), it is a process whereby an individual or a group of individuals, in association with an existing organisation, creates a new organisation, or instigates renewal or innovation within the old one. Dess et al. (2003) describe CE as the driver of new businesses within on-going enterprises, achieved through internal innovation, joint ventures or acquisitions. The elements of CE include (Thornberry 2003: 332):

- The creation of something New that did not exist before: a new business within a business, a product, a service, delivery system, a new value proposition. The New is intended to result in long-term economic value and the creation of wealth
- The New requires additional resources and or changes in the pattern of resource deployment within the organisation
- Learning takes place in both the creation of the New and its implementation, which results in the development of new organisational capabilities
- There is increased risk because the New is unproven

The emphasis in CE studies has been on the creation of new capabilities and the recognition of opportunities, but as is evident in Dess et al. (2003), CE is firmly linked to strategic thinking in the context of established firms. The emerging field of Strategic Entrepreneurship (SE)[ii], in turn, specifically highlights the importance of combining opportunity- and advantage-seeking behaviours, i.e. entrepreneurial and strategic thinking (Ireland et al. 2003). It facilitates a company's efforts to identify the best opportunities (matched to their resources), and then to exploit them by following a strategic business plan (Hitt et al. 2002). The importance of company growth is assumed, and wealth creation is seen as an outcome of the effective combination of entrepreneurship and strategic management (Ireland et al. 2003). Figure 3 illustrates the connections between strategic management, entrepreneurship and SE.



Source: adapted from Meyer et al. (2002: 34)

Figure 3: The entrepreneurship – strategic management interface

The organisational-capabilities approach to strategic management

An overview of the capabilities school

The strategy field is characterised by a plurality of concepts, theories and approaches. Volberda (2004) suggests that one way of avoiding further fragmentation is to create synthesising schools that

- are anchored around a few clusters of strategic-management problems
- are based on theories from various base disciplines with explicit reference to them
- develop clear problem-solving tools from a chosen range of these theories

One of the recent developments in strategy synthesis is the organisational-capabilities approach, which is an umbrella term covering the capabilities, dynamic capabilities and competence approaches to strategic management (Foss 2003)[iii]. The focus is on examining sources of competitive advantage and localised innovative activity, and on determining what is distinctive about firms as unitary, historical organisations of co-operating individuals (Foss 2003, Langlois and Foss 1999). The theoretical basis of the capabilities school is diverse and includes the resource-based theory of the firm, evolutionary economics, and learning theories (Volberda 2004, Foss 2003).

The resource-based view of the firm (RBV) is the theoretical starting point. According to the theory, firms are heterogeneous in terms of resources, these resource differences are path-dependent, and they cause long-term performance differences. The value of the resources is dependent on factors that are exogenous to the firm (Spanos and Lioukas 2001). Well-performing companies have more accurate expectations about the future value of resources than their competitors. The firm's current resources influence managerial perceptions and hence the directions of growth (Wernerfelt 1984). A firm's strategy selection is based on the careful evaluation of its resource portfolios and it reflects the market influence (Barney 1991).

There are certain 'blind spots' in this thinking, however. It does not address the unique role of knowledge-based resources, it has not adequately explained how and why some firms have competitive advantage in rapidly shifting environments, and it has paid little attention to the co-ordination and leveraging of resources. Table 3 summarises the core questions, contributing disciplines and new dimensions of the capabilities approach.

Table 3: The organisational-capabilities approach

Questions	With whom and how do firms compete?, How do they sustain their competitive advantage over time?
Base theories/ contributing disciplines	*Economics (Resource-based view of the firm; Evolutionary economics)* Why resource-based endowments cause performance differentials (e.g., Wernerfelt 1984, Barney 1991) How firm-specific advantages are nurtured through differential skills and routines (e.g., Nelson and Winter 1982**)** *Industrial organisation* Environmental change may change the significance of resources and capabilities to the firm; activities related to the value chain (e.g. Porter 1980) *Knowledge-based view of the firm* The role of knowledge in production and exchange processes and the key inimitable resource of the firm (e.g., Grant 1996a, Nonaka and Takeuchi 1995, Kogut and Zander 1992) *Organisational learning* How firms learn and how they can distil lessons from prior experiences; exploration/exploitation constructs (e.g., March 1991, Levinthal and March 1993)
New directions	Co-evolution of capabilities and competition, Managerial dimensions of (dynamic) capabilities, Linking individual and collective learning in the development of capabilities

The capabilities approach attempts to extend the RBV by addressing strategic change and the challenge of operating in today's new business environments. According to the capabilities approach, the firm's resources should not be valued as stocks, but situated to the activity and the context where they are used. It follows that managers should focus not only on the resources (from which capabilities derive), but also on the structural principles behind their appropriate building up, and on the construction techniques used (Makadok 2001). With its close connection to the knowledge-based view of the firm (KBV) and to learning theories, the capabilities approach emphasises experiential, localised and socially constructed knowledge, and considers strategic management as a collective learning process aimed at developing distinctive capabilities (competences) that are difficult to imitate (Volberda 2004).

Defining a capability

Despite the popularity of the organisational-capabilities approach, it suffers from conceptual ambiguity. Even though attempts have been made to distinguish between competences and capabilities (see e.g., Sanchez, Heene and Thomas 1996), the viewpoint adopted in this study is that the distinction is mainly semantic (see e.g., Atuahene-Gima 2005, Danneels 2002, Grant 1996b, Day 1994), and the concept of capability is used[iv]. One of the earliest definitions of capability (Richardson 1972) includes most of the ingredients that have been refined and recombined in the later research:

> *"It is convenient to think of an industry as carrying out an indefinitely large number of activities, activities related to the discovery and estimation of future wants, to research, development and design, to the execution and co-ordination of processes of physical transformation, the marketing of goods and so on. And we have to recognise that these activities have to be carried out by organisations with appropriate capabilities, or, in other words, with appropriate knowledge, experience and skills."* (Richardson 1972: 888)

As in Warren (2000) and Grant (1998, 1996b), for example, this study starts from the notion that capabilities refer to what a firm can do, whereas resources are the things it has. Resources can be defined independently of their use, whereas capabilities imply a function, an activity (Penrose 1959). The firm brings together more tangible, input resources and knowledge-based resources, and bundles them to perform a productive activity (Vorhies et al. 1999, Galunic and Rodan 1998, Grant 1996b). Capabilities build on organisational routines:

> *"Routines carve a crucially important aspect of knowledge right at its joints, namely, its application. For this reason, routines are also considered as the building blocks of organizational capabilities."* Becker (2004: 662)

Routines are collective recurrent activity patterns (Becker 2004), and they are to the organisation what skills are to the individual (Grant 1998). An organisational capability is a high-level routine that, together with its implementing input flows, grants the organisation's management a set of decision options for producing significant outputs of a particular type (Winter 2000). Accordingly, capabilities consist of complex patterns of co-ordination between people, and between people and other resources, that form integrative sequences of activities (i.e. processes[v]) (Helfat and Peteraf 2003, Vorhies et al. 1999, Grant 1996b, Amit and Schoemaker 1993). The difference between a routine and a capability is thus mainly in the level of complexity, and in the more direct link between capabilities and managerial intentions, company strategy and output.

Another distinction between routines and capabilities is the relative emphasis on stability. As Winter (2000) notes, brilliant improvisation is not a routine. The aspect of consistency is important, as routines may then play an explicit or implicit role as co-ordination mechanisms, economise on limited cognitive resources, and provide stability of behaviour. As a result, they have often been associated with inertia. In contrast, the question of change and variation is an essential one in the capabilities approach to strategic management, given the need to address the challenge of operating in today's volatile business environments. Capabilities are often classified as operational (nondynamic) and dynamic, where operational capabilities involve the production of a good or the provision of a marketable service. Nondynamic capabilities are thought to change through the action of dynamic capabilities, where the term

> *"'dynamic' refers to the capacity to renew competencies so as to achieve congruence with the changing business environment… the term 'capabilities' emphasises the role of managers in this capacity"* (Teece et al. 1997: 516)

This study follows the argumentation put forward by Helfat and Peteraf (2003), however, and it is assumed that, while some capabilities may specifically deal with adaptation, learning and change, they all have the potential to accommodate change. The concept of a capability as a set of routines supports this claim: despite the traditional emphasis on stability, recent research shows that routines change and vary (Becker 2004).

Thus, organisational capability is defined in this study as the capacity of an organisation to perform a co-ordinated set of activities, utilising its resources, for the purposes of

achieving a particular end result (Helfat and Peteraf 2003, Langlois and Foss 1999, Grant 1998, 1996b) [vi]. The ultimate purpose is to distinguish the firm along the dimensions that bring value to its customers and/or create market or industry change (Hunt and Morgan 1995).

Founding and establishing an organisational capability

The organisational-capabilities approach has close connections with the knowledge-based view of the firm (KBV) and with learning theories (Vera and Crossan 2003). KBV and organisational-learning research, in particular, have influenced understanding of the origins of capabilities.

Capabilities and routines could be interpreted as collectively held knowledge, knowledge of how to do things, which arises from the integration and co-ordination of specialised, individual knowledge (Loasby 1998, Grant 1996, Kogut and Zander 1992). Accordingly, routines and capabilities result from and may be altered by the learning process (Cohendet and Llerena 2003). When individual and group learning becomes institutionalised, organisational learning occurs and knowledge is embedded in repositories such as routines[vii]. Thus, the capability life cycle described by Helfat and Peteraf (2003)[viii] has many parallels with the learning process in organisations (Crossan et al. 1999).

The origin of new knowledge is in human experiences, and knowledge is integrated into relationships (Gold et al. 2001, Loasby 1998, Leonard-Barton 1992). Thus, the first stage of the learning process (and of capability development) involves intuiting on the individual level: the preconscious recognition of the pattern and/or opportunities inherent in a personal stream of experience that can affect the individual's actions (Crossan et al. 1999). 'Expert' intuition is good for pattern recognition, whereas 'entrepreneurs' have the ability to make novel connections (Crossan et al. 1999).

The life cycle of a capability/routine starts when a team of intuiting individuals, under some type of leadership and capable of joint action, organises itself around an objective requiring or essentially involving the creation of an activity (Helfat and Peteraf 2003). The team members must then be able to interpret their intuitions, i.e. explain through words and/or actions an insight or idea to themselves and to others (Crossan et al. 1999). Depending on their established cognitive frames, individuals' interpretations of the same situation differ. Integrating is the process of developing shared understanding through conversing, and of taking co-ordinated action through mutual adjustment (Crossan et al. 1999)[ix].

The resulting activity further develops through the search for viable alternatives in terms of carrying it out (Helfat and Peteraf 2003). While exercising the co-ordinated activity, it becomes more deeply embedded in the organisation, and experience accumulates. Particular individuals may play a key role (leadership), and their decisions and characteristics affect the developmental path. This central actor may be, but often is not, the same individual with whom the initiative (intuition) originated (Floyd and Woolridge 1999). At some point development ceases. It may end simply because there are limits to what any team can achieve with available resources. The temporary social relationships that may have emerged during the founding of the interaction become recognised and formalised (Floyd and Wooldridge 1999). Activities require less and less conscious thought, and over time the ability of the team to recall the developmental path may fade, and the activities may become more tacit in nature and routinised. If new members of an organisation face strong pressure to conform, suboptimal routines may be closed

prematurely (Aldrich 1999, March 1991). If the activity is recurring and significant, it will be acknowledged and institutionalised on the organisational level (Crossan et al. 1999). At what point a routine becomes a capability is a matter of degree, but according to Helfat and Peteraf (2003), a capability becomes established when it has reached some threshold level of activity and works in a reliable manner. Winter (2000) suggests that a capability is

- substantial in scale and significance
- reflected in a large chunk of activity that enables outputs that clearly matter to the organisation's survival and prosperity
- known to the management at least in the minimal sense that the control levers and their intended effects are known

Capability branching occurs when external factors have a strong enough impact to alter the current developmental path (Helfat and Peteraf 2003). Branching includes *retirement*, *retrenchment*, *replication*, *redeployment*, *recombination* and *renewal* (Helfat and Peteraf 2003). Extreme circumstances may force a firm to give up a capability entirely, meaning death (*retirement*) or gradual decline (*retrenchment*) in its level. On the other hand, the firm may try to *replicate* the capability by reproducing it in another geographic area. *Redeployment* involves going into the market for a different but closely related product or service, and often requires some alteration in order to serve the new market. The firm may also *recombine* the original capability with another. Finally, *renewal* entails entering a new developmental stage. These four last-mentioned processes are similar to 'retention' as described by Aldrich (1999).

The importance of context in capability building: technology and organisational design

The thorough mapping of a capability would incorporate the artefacts and documents used (Becker 2004), indicating interplay between tangible and knowledge-based resources. The role of technical systems is significant in facilitating information travel and assessment throughout the company. The members of the team involved in developing the capability may be geographically dispersed, hence the emphasis on IT especially in research on prescriptive knowledge management (Vera and Crossan 2003). Since technology is multifaceted, the organisation must invest in a comprehensive infrastructure that supports the various types of knowledge and communication (Gold et al. 2001). *Business intelligence techniques* support information gathering from the firm's competitors and other market environment, *collaborative technologies* allow individuals to work together, *discovery technologies* enable the firm to search for both public and private information, *knowledge mapping* allows individuals to find the information they need, and *information and knowledge storage technologies* enable the firm to develop databases on its customers, suppliers, partners and employees (Gold et al. 2001).

Further, capability development seldom starts from a clean slate. The members of the newly formed team bring with them human knowledge, skills, and social ties from within and outside team. As a group these individuals may possess team-specific human and social capital if they have worked together previously in another organisational setting. In the course of organisational-knowledge creation and capability development, there is a continuous codification of activities through which the firm provides its members with the generic rules and procedures that enable them to work efficiently and consistently in pre-known circumstances (Huysman 2003, Crossan et al. 1999). On the other hand, the interpretation and application of general rules in the course of work are reliant on

employees' social relations and experiences (Huysman 2003, Crossan et al. 1999). Furthermore, the establishment of routines creates new procedures.

Capability building takes place in different kinds of organisational communities (groups or networks of people), some of which are hierarchical and others are more autonomous (Cohendet and Llerena 2003). Functional groups are vertically structured, recognised by the organisation, and present in the divisional structures and matrices (e.g., marketing, manufacturing, raw-material procurement). They form the basis for the division of work and specialisation, implement the mechanisms of authority, and create the context for collective behaviour (Cohendet and Llerena 2003). They can be captured in organisational charts and job descriptions.

Non-canonical groups, in turn, are laterally co-ordinated, and present the sociostructure of the organisation (Cohendet and Llerena 2003). As an exemplification, Brown and Duguid (2001, 1991) describe 'communities of practice' that consist of people committed to the same work or profession, communicating regularly about their activities in order to increase their performance, and thus gradually learning how to think and act as a community member. Such non-canonical groups interact with their part of the firm's environment, develop localised solutions to their problems, pursue their goals, and draw knowledge from their network connections (Brown and Duguid 2001, 1991).

Organisational knowledge, routines and capabilities thus need to be understood in terms of concrete contexts that support the activity. Organisational design is a construct that refers to the process of assessing and selecting the structure and formal system of communication, the division of labour, and the co-ordination, control, authority and responsibility required to achieve the organisation's goals (Trent 2004). It highlights patterns of interaction and the co-ordination of technology, tasks and human components (Trent 2004). Organisational design, together with the technical systems, supports and guides the actions an individual can or should take in an organisation (Taatila 2004).

Linking the entrepreneurship and capability approaches in the analysis of organisational renewal and growth

Exploration and exploitation

Capabilities represent the implementation of the company's strategic plans (Grant 1998). A strategy is thus

> *"the articulation of means by which an organisation endeavours to convert its intentions into organisational capability in order to take advantage of its external opportunities and to minimise the threats it faces"* (O'Regan and Ghobadian 2004: 298)

Grant (1998) raised important questions related to the capability-based approach to management strategy. What possibilities does a company have to implement a strategic shift, and to renew itself? Can firms develop entirely new capabilities, or is it a matter of exploiting, preserving and developing their existing pool of resources and capabilities, rather than changing them? Business opportunities that are closely related to existing capabilities involve less risk, but they are also unlikely to change the current performance (Hoskisson and Busenitz 2001).

In addressing this problem, entrepreneurship research has become increasingly linked with the resource- and capability-based approaches to strategy:

> *"Existing capabilities are extended and new capabilities develop when an individual or small group within the organization identifies the entrepreneurial opportunities and begins to pursue entrepreneurial initiatives. Linking CE to organizational capability this way focuses the discussion on the problem of capability-induced inertia and provides the means for integrating constructs from knowledge and social network theory"* (Floyd and Woolridge 1999:7).

The two distinct ways of developing the resource and capability base of the firm are often discussed in terms of exploration and exploitation (Crossan et al. 1999, March 1991). Exploration represents a combination of search, experimentation, trial and free discovery, and is concerned with variety in experience (Holmqvist 2004, Crossan et al. 1999, Levinthal and March 1993, March 1991). It is linked with creating capabilities, and the higher the frequency of variation, the greater the opportunities for creation and change (Aldrich 1999). Exploitation, in turn, includes matters such as refinement, efficiency, implementation, focused attention, and developing reliability in experience, and it is related to the use of existing capabilities (Holmqvist 2004, Hitt et al. 2002, Crossan et al. 1999, Levinthal and March 1993, March 1991).

Exploration builds on the search for and acquisition of new knowledge, whereas exploitation emphasises the transfer and sharing of what has already been learnt (Elfring and Hulsink 2003, Hansen 1999, Levinthal and March 1993). Exploitation is a requirement for implementing an advantage-seeking growth strategy, and exploration is needed for succeeding in opportunity-seeking growth.

Dispersed CE and the interaction between formal and informal organisation

The problem of sharing resources between exploration and exploitation has been addressed in the CE research. The discussion has centred on the different organisational designs that should facilitate a certain degree of experimentation in addition to the overall aim to guide and coordinate the firm's core activities (Elfring 2005). Two main distinctions, *focused* and *dispersed* CE, have been proposed (Birkinshaw 1997). With former, large companies imitate small, entrepreneurial firms by creating separate organisations. These ventures are relatively autonomous units that endeavour to combine the resources of the parent company with the agility of a small firm. It is assumed that exploration and exploitation represent competing behaviours, that combining them is counterproductive, and that there are greater returns on specialisation.

With dispersed CE, as advocated in this study, exploration and exploitation are considered complementary, even though the tension between the two behaviours is acknowledged. Thus, each employee is assumed to be able to combine managerial and entrepreneurial thinking (i.e. exploitation and exploration), and entrepreneurial actions are distributed over the organisation. Although its advantages have been largely acknowledged (e.g., Atuahene-Gima 2005, Birkinshaw and Gibson 2004, Kazanjian et al. 2002), the dispersed CE often fails. Yet, the understanding of problems related to dispersed design is important, because even though structural separation may at times be essential, the eventual goal often is to reintegrate the new initiative with the mainstream organisation (Birkinshaw and Gibson 2004).

Within a large company, the critical conditions for dispersed CE are communication and information sharing, support of and openness to new ideas, and tolerance of risk and failure (Elfring 2005). When carrying out their tasks, individuals interact with certain people and organisational units while having relatively little interaction with others. Frequent

interaction between members leads to positive reinforcement of interpersonal behaviour, the maintenance of consistency and a reasonable degree of harmony (Aldrich 1999). This is labelled relational embeddedness in research on social networks (Simsek et al. 2003). As members interact, their participation also shapes their cognitive frames: these schemata of interpretation enable people to locate, perceive, identify and label activities within their lives (Aldrich 1999). They include beliefs about particular types of persons (e.g., engineers cannot understand marketing), behaviours expected of people in a particular social position (e.g., CFOs demand cost cuts), and expected sequences of events in a situation (e.g., all questions related to price are first directed to the customer-segment manager). This aspect of social networks is also called cognitive embeddedness (Simsek et al. 2003).

What is important for organisational renewal and the creation of appropriate capabilities is that the decision makers in firms interpret and respond correctly to the messages they receive (Bergman et al. 2004). The cognitive frames determine what information is recognised as meaningful and how opportunities are perceived. The homogeneity of cognitive frames that is related to the maturity of a capability gives rise to predictability. Efficiency of interpretation and integration is also greatly enhanced when knowledge can be expressed in terms of a common language (Grant 1996a). Homogeneity could also promote inertia and rigidity, however (Becker 2004, Leonard-Barton 1992).

Departure from existing routines and capabilities may result from intentional or blind variations (Aldrich 1999). Sources of intentional variation include formal programmes of experimentation, incentives offered to employees and official tolerance of eccentricity. Blind variation results from trial-and-error learning, luck, imitation, mistakes, passion, surprises, misunderstandings, curiosity and randomness. As the individuals' cognitive frames are affected by their network of relationships, role specialisation and standardisation limit discretion and protect authorities from unauthorised variation (Aldrich 1999). Paradoxically, increasing intragroup homogeneity within an organisation may also become a source of dissent and raise the level of intraorganisational variation (Aldrich 1999). As a rule, however, individuals who maintain relationships not necessarily associated with their formal position are more likely to recognise opportunities and benefit from blind variation at the intuition and integration stages of capability development (Floyd and Woolridge 1999). Thus, the interaction between formal and informal organisation has a strong influence on how the firm as a whole can manage the exploration-exploitation tension involved in the dispersed design, and how the development of new capabilities can be combined with loss-preventing co-ordination (Kazanjian et al. 2002, Crossan et al. 1999).

Competitive advantage and environmental uncertainty

The focus of this study is not on testing the link between different growth strategies and performance. Nevertheless, the assumption is that in order to achieve sustainable, profitable growth, a company is able to maintain competitive advantage in the long run by combining entrepreneurial and strategic thinking. Thus, frequent reference is made to the concept of sustainable competitive advantage (SCA), even though it is acknowledged that this concept has evoked criticism.

Firstly, the meaningfulness of 'competitive advantage' has been questioned. According to Powell (2001), it will serve as a metaphor until a better way can be found to discover and test sustained, superior performance. Rumelt (2003) points out that if advantage is revealed by super-normal returns, it may be relative to the expectations of owners, the economy as a

whole, or the rest of the industry. Secondly, it could also be claimed that ‘sustainable’ has little operational meaning in that, depending on the rate of discount, one year with giant revenue may be just as good as a ‘sustainable’ rent stream. Thirdly, the difference between rents and profits – both common terms in SCA definitions – is a matter of degree. In microeconomics, excess returns that will be competed away are called profits, while sustainable excess returns are called rents. A firm can create profit when it has some advantage over other firms, and rent when it has some advantage that no other firm is able to imitate. As Johnson and Van de Ven (2001) note, a firm's strategic resources allow it to earn rents in the period of industry maturity (equilibrium), not into eternity but only as long as the industry remains undisturbed by the emergence of another industry.

Despite all the problems, SCA remains the central dependent variable in strategy research. This study draws heavily from the resource-based view of the firm in terms of sustainable competitive advantage and examining its sources (Table 4).

Table 4: Definitions of the Sustainable Competitive Advantage (SCA) applied in this study

Author(s) and Date	Main Contributions
Dierickx and Cool (1989)	The sustainability of a firm's asset position is based on how easily assets can be substituted or imitated.
Prahalad and Hamel (1990)	SCA results from core competences: firms should consolidate resources and skills into competences that allow them to adapt quickly to changing opportunities.
Barney (1991)	There are four indicators of the potential of firm resources to generate SCA: value, rareness, resistance to imitation, and imperfect substitution
Peteraf (1993)	There are four conditions to be met for SCA: superior resources (heterogeneity within an industry), ex-post limits to competition, imperfect resource mobility, and ex-ante limits to competition.
Hunt and Morgan (1995)	Comparative advantage in resources can translate into competitive advantage in the marketplace

Source: adapted from Hoffman (2000)

According to the resource-based view, 'sustainable' does not refer to any time period, but implies a condition in which the resources and capabilities remain valuable, rare, inimitable and non-substitutable despite the competitor's efforts to undermine SCA (Barney 1991). However, if the external conditions change, the firm may lose it. A firm is said to have competitive advantage when it is implementing a value-creating strategy that is not being implemented by any current or potential competitors at the same time, and when these other firms are unable to duplicate the benefits of this strategy. Peteraf (1993) developed the concept further, and defined competitive advantage as "sustained above normal returns". She considered the effects of firm heterogeneity, ex-ante and ex-post limits to competition, and immobility. Ex-ante limits mean that resources should be acquired at a price below their discounted net present value, whereas ex-post limits include inimitability and imperfect substitutability of resources to ensure that the imperfect competition continues for a sustained period of time. Hunt and Morgan (1995) connect SCA to the marketplace, and suggest that comparative advantage in resources occurs if:

> *"a company's resources assortment (e.g., its competencies), enables it to produce a market offering that, relative to extant offerings by competitors, (1) is perceived by some market segments to have superior value and/or 2) can be produced at lower costs."* (Hunt and Morgan 1995: 7)

Thus, the value of capabilities and resources (i.e. their potential to create competitive advantage and sustainable income streams) to a company varies over time and is considered exogenous: it is dependent on the industry and the market context. On the industry level, Amit and Schoemaker (1993) introduce Strategic Industry Factors (SIFs) as the portfolio of resources and capabilities that have become the prime determinants of economic rent in a certain industry. SIFs are determined in the market, they change over time, and drive competition. Strategic Assets (SAs), in turn, are the distinguishable resources and capabilities that have the potential to establish the firm's competitive advantage. According to Kreiser and Marino (2002), firms respond to the environment as perceived and interpreted by the decision makers. These managerial perceptions ultimately shape strategy formation and the resource- and-capability portfolio of the companies.

The rate of environmental change also plays a major role in influencing perceived environmental uncertainty. Changes in the external environment may occur in the industry structure, boundaries and recipes, in market demand, global currency rates and regulation, and in the availability of critical resources. Uncertainty stems from the inability to assign probabilities to future events, from a lack of necessary information to identify and understand the causal effects of market changes, and the inability to predict the outcome of decisions (Hoskisson and Busenitz 2002). Market uncertainty increases the probability of failure, and makes it difficult to predict the value of resources and capabilities. The notion of real-options reasoning has recently been introduced in strategic management as a way of dealing with business uncertainty (Hoskisson and Busenitz 2002). Real-options logic is better known from financial theory, in which the limited initial, explorative investment yields information on the wealth-creation potential of the business opportunity (Ireland et al. 2003). Within the strategic approach, entrepreneurial initiatives are considered real options that provide quick access to future opportunities before they close (Hoskisson and Busenitz 2002).

The theoretical framework of the study

Figure 4 presents the basic, underlying framework of this study, which is founded on the theoretical ingredients discussed in the previous sections. Four major contingency links are identifiable:

- link I indicates the influence of the external environment on the growth strategy
- link II depicts the influence of the chosen strategy on organisational arrangements, which is presented as capability building
- link III illustrates the influence of capabilities on strategy
- link IV shows the influence of performance variables on the strategy.

The study specifically considers links II and III.

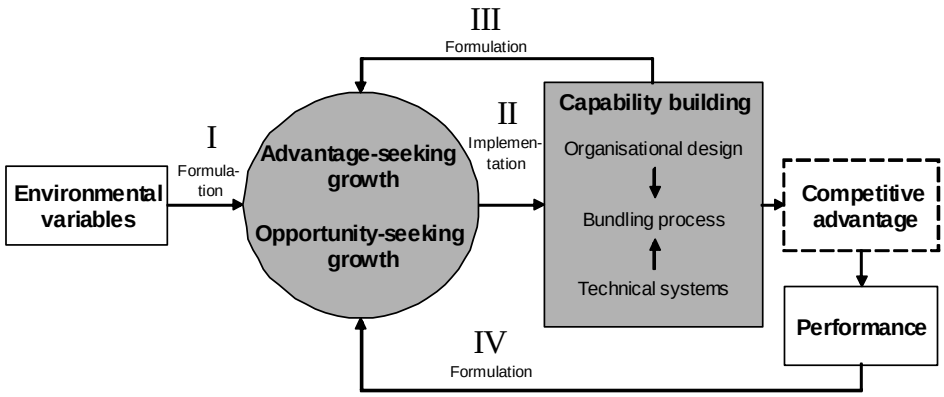


Figure 4: The theoretical framework of the study

In this study, a capability is analysed as a combination of technical systems, organisational design and bundling processes[x]. *Technical systems* include the technology needed for producing the physical product and the related internal and external support and services. Of special significance in capability-building are systems that facilitate information travelling and assessment throughout the company. *Organisational design*, with its formal and informal sides, develops the context for combining tangible and intangible resources and binds the resources to the company values and vision through organisational culture (Siggelkow 2002, Gold et al. 2001, Leonard-Barton 1992). Technical systems and organisational design together comprise the contextual aspect of capabilities.

Resource-bundling processes, in turn, capture the stages and objectives of capability building. The term refers to the definition according to which capabilities consist of complex patterns of co-ordination between people, and between people and other resources, that form an integrative sequence of activities (i.e. processes). The different bundling processes are connected to the capability life cycle and the stages of organisational learning, and they are divided into creating (building new capabilities or renewing them), entrenching (redeploying, replicating or recombining an existing capability), and trimming (retirement or retrenchment) (Sirmon et al. 2005, Helfat and Peteraf 2003, Siggelkow 2002, Ahuja and Lampert 2001, Brown and Eisenhardt 1999, Crossan et al. 1999). Exploratory knowledge search is essential for the identification and valuation of new capabilities, whereas the entrenching of existing capabilities builds more on knowledge transfer and integration (Bergman et al. 2004).

The choice of bundling process is linked to the decisions on organisational design and technical systems, and contingent on the level of environmental uncertainty (Nelson and Winter 1982). Organisations that enjoy a clear and well-defined environment are likely to benefit from strategic moves to increase efficiency, incremental improvements in operations, and incremental innovations associated with current technology (i.e. advantage-seeking growth) (Hoskisson and Busenitz 2002). This type of growth is based on the entrenchment of the already existing capabilities. On the other hand, operating under conditions of substantial uncertainty and competitiveness makes it difficult to predict the competitor's actions and developments outside the industry, and identifying opportunities may become serendipitous (Sirmon et al. 2005). Firms must develop new capabilities in advance in order to be able to respond quickly and effectively (i.e. prepare for opportunity-seeking growth) (ibid.). They have to invest in capability building before they know exactly how valuable the new capabilities will be, and these investments have to be made on the basis of weak signals and expectations of the evolution of the environment (Bergman et al. 2004).

Even though new ventures can often justify a make-or-break business strategy, most established companies have too much to lose to afford a sole emphasis on opportunity seeking. Thus, if environmental change threatens their core activities and/or resources, rendering them obsolete or reducing their value, established firms should combine advantage- and opportunity-seeking growth. This requires both the entrenching and creation of capabilities.

METHODOLOGY

The case study as a research strategy in business and management studies

The definition and aims of a case study

The main feature of a case study is the depth of focus on the research object, which may be a group, an organisation, a culture, an incident or a situation (Ghauri 2004). Creswell (1998) defines the case study as the exploration of a bounded system over time through detailed, in-depth data collection involving multiple sources of context-bound information. It is assumed to advance understanding of the chosen research phenomenon, and to focus attention on one or a few instances (Babbie 2004, Ghauri and Grønhaug 2002). The integrative power of the case study enables the object to be investigated from many angles, and various elements to be drawn together in a cohesive interpretation (Ghauri 2004).

Creswell (1998) classifies case studies as intrinsic and instrumental. An intrinsic study is conducted when the focus is on uniqueness, and an instrumental case study is for the purposes of illustration. Yin (1994) distinguishes between descriptive, exploratory and explanatory case studies.

A case study could be mainly descriptive, especially if the bounded system, the case, is large and complex (Creswell 1998). From a phenomenological perspective, a case study should give an accurate, clear and articulate description of an experience (Polkinghorne 1989). Merriam (1988) suggests that the proper balance between description and the amount of analysis and interpretation could be up to 70%–30% in favour of description. Explanatory and exploratory case research also includes descriptive phases, as it is crucial to the generation of insight, within-case analysis and the checking of facts (Eisenhardt 1989). Case studies have traditionally been thought to be most suitable for exploratory research, where the aim is to develop hypotheses and propositions for further enquiry. In terms of explanatory research, they facilitate the tracing of operational links over time, rather than focusing on mere frequencies or incidence (Yin 1994).

This thesis strongly draws on the definition developed by Yin (1994), according to which case study is posited as a comprehensive research strategy. It is thus

> *"an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. The case study enquiry copes with a technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis."* (Yin 1994: 13)

It has been common to position case studies strictly within the qualitative research approach, and to link them with constructivist assumptions and field observations (e.g., Creswell 1998). However, as Ghauri (2004) and Yin (1994) noted, a case study as such is not necessarily qualitative in nature, and it may be based on any mix of quantitative and qualitative evidence. The aims and composition of the study, the use of inductive and deductive reasoning, and the role of theory vary and it has been combined with a variety of epistemological positions, from the positivist to the phenomenological (Ghauri 2004).

The role of theory also varies: it may be absent altogether, it may guide the cross-site or inter-site comparisons in an explanatory way, or it may be employed towards the end of the study (Creswell 2003, 1998). A case study may be used to support or refute a theory, or for the purposes of creating one (Remenyi and Williams 1998). Table 5 gives some examples of assessment criteria, which vary according to the aims of the study and the role of theory.

Table 5: Different criteria for assessing a case study

Stake (1995) *Focus on the description of the case, theory absent from the study design and implementation*	
Data and Analysis	Is the reader provided with some vicarious experience? Have quotations been used effectively? Has the writer made sound assertions, neither over- nor under-interpreting? Has adequate attention been paid to various contexts? Were sufficient raw data presented? Were the data sources well chosen and in sufficient number? Do observations and interpretations appear to have been triangulated? Is the role and point of view of the researcher nicely apparent? Is the nature of the intended audience apparent? Is empathy shown to all sides? Are personal intentions examined?
Reporting style	Is the report easy to read? Does it fit together, each sentence contributing to the whole? Does the report have a conceptual structure (i.e., themes or issues)? Are its issues developed in a serious and scholarly way? Is there a sense of story to the presentation? Are headings, figures, artefacts, appendixes, and indexes used effectively? Was it edited well, or just given last-minute polish?
Ethical issues	Does it appear that individuals were put at risk?
Eisenhardt (1989) *The case study as a theory-building tool*	
Data and Analysis	Have the investigators followed a careful analytical procedure? Does the evidence support the theory? Have the investigators ruled out rival explanations? Is there enough evidence displayed?
Final outcome	Has the case study resulted in new insights? Do the concepts, frameworks, or propositions form a parsimonious, testable and logically coherent theory?
Yin (1994) *Focus on the explanation, exploration or description of the case: theory is used for creating propositions that guide the study in an explanatory way*	
Data and Analysis	Does the case study consider alternative perspectives? Does it display sufficient evidence?
Reporting style	Is the report composed in an engaging manner?
Final outcome	Is the case study complete? Is it significant?

According to Stake (1995), theories could be absent from a study focusing on case descriptions and related issues, and the broader generalisations – the researcher's summary of the interpretations or claims – left until the end. He sees the case method as being much closer to action research, whereas Eisenhardt (1989) and Yin (1994) liken it in some sense to quasi-experimental research methods. If the aim is to develop a new theory, Eisenhardt (1989) recommends the early identification of possible constructs. However, research should begin with as few preordained theoretical perspectives and propositions as possible. According to Yin (1994), theoretical propositions are needed for a complete research design, and theory development prior to the data collection is therefore an essential step in doing case studies. Since theory development takes time, existing works may provide a rich theoretical framework for the study. Thus, unlike Stake (1995), Eisenhardt (1989) and proponents of a more grounded-theory approach to theory building (Glaser and Strauss 1967), Yin (1994) considers knowing the literature beforehand a necessity. Burawoy (1991) also advocates an extended-case method, in which the purpose is to modify and improve existing theories.

The aim in this thesis is to modify and give new insight into existing theories. Theoretical presuppositions were developed and constructs defined prior to the data collection based on the existing literature, and modified in an iterative manner as the study proceeded. A similar approach to theory-driven case studies was taken by Danneels (2002, 2003), for example.

Relevant conditions for conducting case studies in business and management research

Case studies have often been considered a less desirable form of enquiry than experiments or surveys. Various research strategies have been arrayed hierarchically, the case study considered applicable only to the exploratory phase of an investigation, surveys and histories the most appropriate for the descriptive phase, and experiments the most suitable for explanatory or causal inquiries. However, as Yin (1994) points out, each strategy can be used for all three purposes – explanatory, descriptive and exploratory. Other major concerns are that case studies suffer from a lack of rigour, allow for the deliberate manipulation of the data, provide little basis for scientific generalisation, take too long, and result in massive, unreadable documents. Most of these concerns are related to studies that use a qualitative approach, as employed here.

In spite of the shortcomings, however, there has been an increasing amount of awareness of the case-study approach at academic conferences in recent years, and it is becoming a widely accepted form of research (Ghauri 2004). Irrespective of the researcher's orientation, analysing qualitative data has become more systematic, the distinction between case-study research and case-study teaching has been clarified, generalisability problems have been addressed, justification for using a qualitative approach instead of statistical methods has been provided, and many alternative ways of both conducting and writing case studies have been developed. Remenyi and Williams (1998) go as far as to suggest that, due to the complexity and multi-dimensionality of the circumstances being studied, questionnaires alone are increasingly regarded as inadequate in providing the type of evidence and experience needed for pursuing a doctorate in business and management studies.

The scope and the depth of a case study may be extensive, and more so than many other research strategies designed to provide insight into a management situation. According to one influential argument, they are

> *"particularly well-suited to new research areas or research areas for which existing theory seems inadequate… [a case study] is useful in early stages of research on a topic or when a fresh perspective is needed."* (Eisenhardt 1989: 548-549).

It also allows the researcher to focus on specific instances that may be crucial to understanding the research phenomenon, but are difficult or impossible to capture by using other research tactics such as histories, experiments and a large-scale survey (Yin 1994). The case study and the historical method may overlap, but cases add direct observation and systematic interviewing to the sources of evidence (Yin 1994). Experiments, on the other hand, require the investigator to manipulate behaviour directly, precisely and systematically, which is seldom possible in business and management research. The concepts and variables used in a case study are often multidimensional and complex to quantify and/or there are a great number of them. This makes experiments or survey methods difficult to use.

The choice of research strategy is determined by (1) the objective of the study, (2) the nature of the research problem and questions, and (3) the theoretical frameworks adopted. The objective of this thesis was to provide new insight into how established, large-sized companies could implement their objective for sustainable, profitable growth, and to contribute to the understanding of organisational renewal in this context. Thus, organisational changes were of special interest. A qualitative case study was chosen because it is thereby possible to look directly and longitudinally at processes, states and events, and to show how these have led to specific outcomes (Ghauri 2004).

A case study has specific advantages when

> *"a how or why question is being asked about a contemporary set of events over which the investigator has little or no control"* (Yin 1994: 9).

When research is addressing a 'what' question, the objective of a case study often is to develop hypotheses or propositions for later testing (Ghauri 2004). Both 'what' and 'how' questions were addressed in this thesis, and the case study was used for both description and explanation. Furthermore, the special focus on large-sized, established wood-industry companies limited the potential sample size for a survey. The data was collected from cross-border and cross-cultural settings over a three-year period, thus the qualitative approach of the case study enabled the researcher and the respondents to check their understanding, which in turn improved the comparability of the data collected from different countries and different companies.

Finally, given the theoretical framework (the organisational-capabilities approach stemming from the resource-based view of the firm) and the main concepts under scrutiny (capabilities, organisational renewal, exploration and exploitation), the case study was considered to be the most suitable research strategy. Godfrey and Hill (1995) advocate viewing firms as natural laboratories in which theoretical propositions stemming from the resource-based view can be tested. They emphasise the importance of using qualitative methods in 'observing the unobservable' – the effects of intangible resources on business strategy. Henderson (1994), Lee (1998) and Eisenhardt and Martin (2000) state that, given their embedded and process nature, capabilities are very difficult to identify through quantitative research. Aldrich (1999) calls for research methods that recognise organisational diversity, while Rouse and Daellenbach (1999), among others, recommend

that empirical research adopting the resource-based approach should analyse the specific success factors in a given industry through in-depth fieldwork.

Case studies in forest-business research

It has not been commonplace to use case studies in forest-business research, in which the survey method has been dominant, and in particular, the qualitative approach has rarely been adopted and approved. However, the variety of methods used has increased in the past decade and there are two main reasons for this.

Firstly, the nature of the research questions has altered, calling for more variation in methods. For example, Wilson and Vlosky (1997) used a mixed-method inductive case study to gain understanding of partnering activities in manufacturer-distributor relationships. Vlosky et al. (1998) examined partnerships between wood-products distributors and their manufacturer suppliers by using a case-study approach. Hovgaard and Hansen (2004) conducted a case study to establish how the innovation concept was understood by 17 small forest-products firms in Alaska and Oregon, while Bull and Ferguson (2005) used a qualitative case study to examine the factors influencing the success of wood-product innovations in Australia and New Zealand.

The second reason is more pragmatic but equally important: the strong consolidation in the forest industry has reduced the potential sample size, and the traditional, cross-company survey method has become problematic. To put it simply, if researchers do not wish the available sample size to guide their research interests, they should add to their methodological toolbox.

Case-study design

Case selection and the level of analysis

Although case studies occur in natural settings, issues concerning the manipulation and control of variables are crucial in terms of the research design. The case selection in this study was influenced by the need to control extraneous variables, thus the domain chosen was that of large, established companies operating in the basic industries, namely the wood industry. Diverse companies were selected from this population in order to maximise the differences between organisations and to enable examination of the evidence from different and potentially rival perspectives.

The research relied on ‘purposive sampling’ in the case selection (Silverman 2000). This requires thinking critically about the population parameters and selecting the cases that best illustrate a feature or a process to which the research is theoretically relevant. In the business context, the unit of analysis – the 'case' – usually refers to the type of organisation that is to be studied, i.e. a firm, a division, a department, a project or a corporate function (Remenyi and Williams 1998). In this research, the main unit of analysis was an independent wood-industry company or, if the company was part of a larger corporation, a wood-industry subsidiary or part of it. However, as organisational learning and capability building occurs on the individual, group and organisational (firm) levels (Vera and Crossan 2003), the unit of analysis in Sub-study III shifted from organisations to groups and individuals. The focus on North American and European companies was motivated by their

accessibility, and by the fact that worldwide industry consolidation has resulted in the concentration of leading companies in these two continents. The worldwide presence of the case companies facilitated the broadening of the geographical scope of the research. The study focused on the large, established wood-industry companies in 1998–2004 for the following reasons:

- Large, established companies in a basic industry sensitive to economic fluctuations frequently face the dilemma of combining opportunity-seeking and advantage-maintaining growth.
- The observed time period included both an economic upswing and a persistent slowdown, which made wood-industry companies rethink their objectives and their implementation. The companies underwent a great number of organisational changes. Accordingly, the research issue was relevant and topical in most of them, and the amount of data was controllable.
- The large companies are, in many ways, the potential forerunners in their industry. They have a wide geographical scope, they have more resources to fund innovation, and their customer base connects them to a wide network that can be used in market sensing (Ahuja and Lampert 2001). Thus, by observing them, it was possible to describe the general trends in the industry in foresight.

A multi-phase case-selection process was used to identify the large, established wood-industry companies in each country. The first step was to create a list of 120 forest-industry companies from 12 countries, compiled from existing lists such as PriceWaterhouseCooper's Top 100 forest-industry companies from 1998-2001. Eighty of these were then ruled out according to the following three criteria:

- The company had no wood-industry activities (panel, sawmilling or engineered wood products), or such activities accounted for less than 10% of its revenue in 2000
- The company was not an established one, or belonged to the wood-industry SMEs. For the purposes of this study, an established company was defined as one that was more than 10 years old and was among the 10 biggest wood-product-industry companies in its home country measured by revenue and production figures
- Not enough secondary information was available to decide whether the company met the criteria.

The remaining 40 companies were analysed in detail from the available secondary material in order to identify the industry leaders, and the lists were compared and discussed with seven Nordic, long-serving wood-industry experts from forest-industry co-operative organisations and companies. The contributions of the experts were valuable, particularly in the case of private companies on which there was relatively little published information. The companies were identified on the basis of a multidimensional business-performance evaluation (Venkatraman and Ramanujam 1986), business performance being viewed in terms of both financial and operational indicators. Thus, performance and growth strategies were evaluated not only on indicators such as sales growth, profitability and earnings per share, but also in terms of market share, employee satisfaction and new-product development. The data was first collected from secondary sources, and in the final set of 11 cases operational and financial data was also gathered from primary sources.

The final case-selection strategy used within the industry was based on a division by core businesses and business culture, and resulted in a group of 27 companies from seven countries (for an example of a similar selection strategy, see Gersick (1988) and Harris and Sutton (1986)). The companies were chosen on the grounds that they represented the industry in three sectors (panels, sawmilling and engineered wood products). Albeit closely linked, they all had strong characteristics of their own. For the sake of comparison, they were also grouped into Anglo-Saxon, Germanic and Scandinavian cases according to their business culture and organisation type. This division was based on studies by Ferner et al. (2001), Fincham and Rhodes (1994) and Rodgers (1986) about cultural differences and their effect on business. The spread of the case companies roughly reflected the actual production volumes from each continent and the importance of different core businesses within the wood industry. Thus, the US and Canadian producers outnumbered the producers from Germany, Austria, Sweden and Finland. Accordingly, the number of timber and panel producers outnumbered the EWP producers. Eight of the companies were not listed.

Primary data was collected from 11 case companies, which were selected to represent each business culture and the three main core businesses (timber, panel and EWP) (Table 6). Four cases were further selected for in-depth study, again chosen on the grounds of representing each business culture and the main business. Three of the companies belonged to the group of 11 cases, and one was interactively added from the main group of 27 cases in order to test the emerging generalisations from the first phase (Silverman 2000, Mason 1996). Finally, one company from among the group of 11 was chosen for an embedded single-case study, in which each company function was first treated as a separate case, and the functions were compared in order to form the firm perspective.

Table 6: Background variables of the case companies

Background variable	Number of cases			
	27	11	4	1
Business culture				
Anglo-Saxon (the US, Canada, the UK)	12	6	2	-
Germanic (Austria, Germany)	9	2	1	-
Scandinavian (Sweden, Finland)	6	3	1	1
Core business in the wood industry				
Timber	4	2	2	-
Panel	5	3	1	-
Panel + timber	4	-	-	-
EWP + panel	2	-	-	-
EWP + timber	4	1	1	-
EWP + timber + panel	8	5	-	1

EWP (Engineered wood products) = glued laminated timber (glulam); structural composite lumber (SCL) consisting of laminated veneer lumber (LVL), parallel strand lumber and oriented strand lumber; wood I-beams.
Panel = fibreboard (including MDF), particleboard (including OSB), and plywood.

The study followed multiple-case-replication logic (Yin 1994) and a 'T-design' (Thölke et al. 2001). In each sub-study, the first set of cases was used for the holistic exploration of the research domain, thus forming the horizontal dimension of the T-design, while the final set analysed the research domain in-depth, thus representing the vertical dimension. The principle of literal replication, according to which each case is considered analogous to an experimental logic, was used in each of the groups of cases (Yin 1994).

Sources of data and data-collection procedures

Data collection and analysis were interwoven in this study, as advocated by Miles and Hubermann (1994). However, for the sake of clarity, the collection and analysis are described in separate sections. The data was gathered in 2002–2004. The interviews comprised the main part of the case-study evidence, but due to the problems related to verbal reports (Remenyi and Williams 1998), they were corroborated by documents and by visiting the company sites and observing the surroundings as well as the internal behavioural and environmental conditions. The case-study database thus consisted of the case-study notes (audiotapes, typed and handwritten notes) and documents (newspaper clippings, annual reports) (Table 7).

Table 7: Data sources

Data source	Number
Secondary data	
Annual reports, environmental reports (1998–2001: all 27 cases, 1998–2002: 11 cases, 1998–2004: single case)	94
Newspaper clippings and articles (1998–2001: all 27 cases, 1998–2002: 11 cases, 1998–2004: single case)	350
Company brochures and other printed material, videos	14
Company web pages (mainly for access to public speeches, and press releases 1998–2004)	
Primary data	
Interviews, Anglo-Saxon companies	20
Interviews, Germanic companies	6
Interviews, Scandinavian companies	17
Expert interviews	19
Total number of interviews (length from 45 minutes to 3 hours)	*62*

Secondary material was used throughout the research to provide background information, to ensure construct validity and reliability, and to minimise the time spent in the companies. The possibility for observation was limited due to the tight interview schedule, as is normal in international business studies. However, the second-phase and third-phase interviews gave the opportunity to visit not only the headquarters but also the mills, and to spend two to five days in the case companies.

Following the analysis of the secondary material, focused interviews were conducted in the case companies in three phases over three years. The interview outline broadly followed the same guidelines, but the questions were more detailed and in-depth in each phase, the third phase focusing on capability building on the organisational level (see Table 8).

The reports from the interviewees were both retrospective and current in terms of the capabilities and organisational changes they described. The planned instrumentation was chosen because it made the data collection more efficient, and the common instruments enabled comparison across cases (Tashakkori and Teddlie 1998). A round of expert interviews was conducted after each phase to test the emerging propositions and the question format for the next round of company interviews.

Table 8: The interviews

	Interview phase		
	I (11 cases)	II (4 cases)	III (single case)
Time	March 2002– May 2002	December 2002– April 2003	November 2004– December 2004
Interview format	Open-ended, semi-structured	Semi-structured	Structured, semi-structured
Data analysed for…	Sub-studies I–III	Sub-studies I–III	Sub-study III
Interview outline	(i) Changes in the competitive landscape (ii) Company's objectives (iii) Implementation of the objectives • The recent organisational changes, their reasons and aims • The development of capability portfolios and individual capabilities		

The interviewees were contacted initially by email or by telephone. One informant was contacted and interviewed from each company during the first phase. They included vice presidents of the wood-industry SBUs, deputy managing directors, R&D directors and marketing directors, or their assignments were otherwise related to strategic planning and business development. Four companies were involved in the second phase, three of which had been included in the first-phase interviews and the fourth was added in order to test the emerging generalisations. Between two and seven interviewees were selected from each firm so as to present a variety of functional viewpoints within each company (e.g. marketing, R&D, raw-material supply, logistics and manufacturing), one informant always representing the whole company (e.g., managing director, business manager). For the third phase, twelve informants were selected from one company in order to build up a multifaceted picture of the organisational structure and the communication patterns. The interviewees represented all the company functions, the segment, and the corporation. They answered the questions in their current professional role, although in some cases they offered two different perspectives thus also reflecting their previous job in the organisation. Even though the main level of analysis was the company (Sub-studies I and II), the individual and the group levels were linked in Sub-study III.

The recorded interviews were transcribed verbatim after each phase, and firm-specific cases were written and sent to the companies for comment before the next phase began. Studies drawing on cross-cultural interviews are challenging in terms of language choices throughout the project. The cases in question were written in English, and the majority of the interviews were conducted in English with native and non-native speakers, and in Finnish with native speakers. Some were conducted in German and Swedish, and the interviewees used multiple languages in their responses. The interviewer was a native Finnish speaker. In the other than English transcripts, only the parts used in the analysis were translated. A similar interview technique was used by Marschan-Piekkari and Reis (2004).

Data analysis

The data was used to reconceptualise and extend existing theories. In this type of case research,

> *"the researcher examines the literature relevant to his/her problem area, and employs the empirical data to fill in its gaps, reveal its flaws, elaborate its meaning, and extend its coverage"* (Danneels 2002: 1098)

The first step in the data analysis constituted the within-case data reduction and display stage, which involved detailed case-study write-ups for each company. The data was interpreted through 'veridical reading', according to which the respondent is considered a neutral informant (Kvale 1996). The secondary material and the interview transcripts were coded according to themes that were derived from the research objectives and the theoretical background of the sub-study in question, and thus broadly followed the interview outlines (Boyatzis 1998). Eisenhardt (1989) recommends a similar tactic involving the selection of categories or dimensions based on the research problem or on existing literature. Berg (1989) refers to conceptual clusters, which are sets of closely related analytic ideas, such as 'firm-specific capabilities' and 'exploration/exploitation'. Critical paragraphs were highlighted and coded, initial interpretations were written in the margins, and memos were written on post-it notes. Data was divided by data source so that the interviews and documents were coded separately but following the same thematic code. The coding was refined as the focus of the analysis shifted from more general (Sub-study I) to the more particular (Sub-studies II and III). For a more detailed description of the coding for each sub-study, see the methodology sections in Articles I, II and III.

As advocated by Yin (1994) and Eisenhardt (1989), the chosen general analytic strategy was to use pattern matching relying on theoretical propositions. This kind of logic is used to compare an empirically based pattern with a predicted one. The predicted pattern is then shaped and refined by iterating between theory and data. The final product may be concepts, conceptual frameworks, propositions or mid-range theories (Eisenhardt 1989). The within-case analysis was followed by a cross-case search and a comparison of the emerging patterns. Yin (1994: 111) describes this process in terms of a series of iterations:

- Making the initial theoretical statement or an initial proposition about policy or social behaviour
- Comparing the findings of an initial case against such a statement or proposition
- Revising the statements or proposition
- Comparing other details of the case against the revision
- Again revising the statement or proposition
- Comparing the revision to the facts of a second, third or more cases
- Repeating this process as many times as needed

The use of computerised data analysis was considered, but rejected mainly because the secondary and primary data included texts in four languages, which made computer-aided searching for codes and concepts less efficient.

Validation

Tactics such as theoretical sampling, triangulation, pattern matching and analytical generalisation were used to ensure process and outcome validity, and to safeguard the

quality of the research design (Pauwels and Matthyssens 2004, Silverman 2000, Yin 1994) (Table 9).

There has been little effort in qualitative research to distinguish between measurement quality and inference quality. The language of validity and reliability was originally developed for use in positivist, quantitative social science, but qualitative equivalents have been proposed. Usually they centre around the notion of 'evaluability' or 'trustworthiness': one should design and conduct the study so that an outsider can make sense of it and replicate it. Yin (1994) took a more positivist approach when dealing with construct and internal validity, but moved in the constructionist direction in terms of external validity. Another influential conceptualisation was offered by Lincoln and Guba (1985) in substituting internal validity with credibility, external validity with transferability, and reliability with dependability.

Table 9: Tactics for safeguarding the quality of the research design

Issue	Tactics used in this study	Phase of research in which the tactic was used
Construct validity (the correct operational measures for the concepts being studied)	• multiple sources of evidence (data triangulation) • key informants reviewed draft case-study reports • presentations for the participating firms	• data collection and composition
Internal validity (credibility of the conclusions that are derived from linking observations/ data)	• building cases over two years (prolonged engagement) • pattern-matching • key informants reviewed draft case-study reports • presentations for the participating firms	• research design and composition, data analysis
External validity (the domain within which a study's findings can be generalised)	• replication logic in the context of multiple-case design • purposive and theoretical sampling • comparing the case results with already existing related studies	• research design and composition
Reliability (the study can be repeated achieving the same results)	• case-study protocol • case-study database	• data collection and analysis

MAIN RESULTS OF THE SUB-STUDIES

Guidelines for sustainable, external corporate growth: a case study of the leading European and North American wood-industry companies (Sub-study I)

In theoretical terms, the purpose of this paper was to contribute to the understanding of the various dimensions of the growth concept, which was done by bringing in intangible growth attributes. Empirically, the aim was to investigate the change and implementation of the growth objective in the leading North American and European wood-industry companies. The realm of forest-business research was expanded by observing wood-industry companies as knowledge organisations. The theoretical background was constructed by combining theories of company growth and the knowledge-based view. This resulted in a set of propositions that were compared with the observations resulting from the four-step case analysis. The data consisted of documents collected from 27 North American and European wood-industry companies and 31 interviews conducted in 11 companies.

Executing a sustainable growth strategy through capability building required a growth focus that accumulated both a tangible and an intangible resource base. The case analysis revealed that the growth appeared in sequences, and that these sequences were partly overlapping. The first observed phase was focused on increasing capacity and achieving economies of scale in production, and the second on obtaining knowledge-attainment resources with a view to improving the ability to attain, integrate and manage the company's knowledge base. Growth that was directed at ensuring efficient, large-scale production remained an operative imperative for the companies. As a result of rapid expansion through mergers, acquisitions and mill investments, their manufacturing processes and production technology were up-to-date. This was the prerequisite for staying in business and remaining competitive. However, the differentiation was thought to arise mainly through growth in knowledge-attainment resources that enabled the collection, integration and storing of knowledge in the firms, and its translation into business activities.

Growth mode struggled to balance diversity and homogeneity. The utilisation of Group resources could be interpreted in two ways. On the one hand, it meant enriching the subsidiary's resource base and considerably expanding its resource pool. On the other hand, if this kind of resource leverage was based on recycling existing concepts rather than creating new ones, it did not necessarily contribute to enhancing the resource base of the whole corporation. The study showed that it was possible to combine the benefits of heterogeneity and homogeneity within a strong Group, while in terms of production, the companies sought similarities in the resource base and copied best practises in order to utilise economies of scale and scope. At the same time, they invested in human resources and knowledge management in order to benefit from the richness of their knowledge base. Even though growth in terms of revenue or capacity increase was put on hold, accumulation could still take place in the company's intangible-resource base.

Companies preparing for sustainable growth created organisational competencies with the aim of combining rapid knowledge conversion with scale advantages. They did this by instituting organisational changes and getting closer to the markets. Defining the target market(s) gave the large companies scale advantages in production, and simultaneously

enabled them to gain deep knowledge about their customers and to create long-term customer relationships. Organisational changes were intended to ensure information flow from the market and within the company.

The findings implied that the case companies believed in minimising precariousness rather than accepting it as an inseparable part of the future market environment. The strong emphasis on planning suggested that the aim was for predictability. The study showed knowledge attainment was becoming more important in the wood industry, and that it was needed in order to capitalise on the investments made in production. The most notable adjustments in the case companies were made in terms of abandoning a business culture based solely on maximising production volumes or revenue (volume growth of a commodity product), and shifting towards value-creating growth and profitability. Growth and the size alone no longer offered competitive advantage by themselves.

On the evidence of this study, a wood-industry company could be thought of as operating on two layers. The first layer comprises efficient production processes, up-to-date technology and rigorous cost control. The second layer that is needed incorporates innovation, the creative use of information and the combination of new knowledge. However, the building of the second layer is a slow process and still underway. The future challenge for wood-industry companies is to combine these two layers in order to ensure sustainable, profitable growth.

A conceptual analysis of capabilities: identifying and classifying sources of competitive advantage in the wood industry (Sub-study II)

The purpose of this paper was to create a conceptual framework that would help in identifying, analysing and classifying organisational capabilities. In theoretical terms, the objective was to enhance our understanding of the mechanisms by which capabilities contribute to the competitive advantage of a company, and to clarify the interplay between firm-internal and – external factors in the development of capability portfolios. From the practical perspective, the aim was to use the conceptual tools to explore and explain the content and dynamics of the prevailing capability portfolio of the large, established North American and European wood-industry companies under investigation. The data consisted of documents collected from the 27 companies, and 31 interviews conducted in 11 of them.

An identification and classification system was proposed that takes into consideration three dimensions: the interaction between firm-specific and industry-significant capabilities, hierarchies of capabilities, and their internal structure. Industry and market contexts determine what resources and capabilities are basic requirements for a company, and which ones could differentiate it from its counterparts. Industry-significant and firm-specific capability portfolios are complementary and dynamic. The hierarchy evolves in accordance with how widespread the integration and accumulation of knowledge and other resources has to be, and the extent to which activities need to be co-ordinated. Each capability can be analysed as a combination of technical systems, organisation (including both structural and cultural aspects), and resource-bundling process.

The companies seemed to have gained their current competitive advantage through firm-specific, differentiating capabilities in three ways: (1) by sensing market change earlier than the competition, and systematically starting to develop matching capabilities (proactiveness); (2) by grabbing the opportunity when the market/industry context changed in a way that made their existing capabilities advantageous (reactiveness); and (3) by

exploiting capabilities that were heavily dependent on one building block (deep customer knowledge, reputation, fibre base) that was immobile, inimitable and non-substitutable (protectiveness). Five functional (HRM, logistics, marketing & sales, materials management, and manufacturing capabilities) and four cross-functional (cost-control, information and knowledge management, internal integration, organising and business development) capability groups were identified and analysed in the case companies.

The use of modern technology in production was no longer a primary source of competitiveness, but rather belonged to the portfolio of basic capabilities. Knowledge and information management belonged to a capability group that had become an industry imperative, on a par with cost effectiveness, which had maintained its importance over the previous decade. The non-product-specific nature of the higher-order capabilities made it possible to establish competitive advantage through internal integration. Even though being a large company was not thought to be a differentiator in itself, it could potentially give an opportunity to benchmark, to learn about and develop processes internally, to utilise efficiencies of scale, and to enjoy certain freedom of action – all of which are particularly useful in difficult economic circumstances. Other key sources of differentiation were based on human and relational capital, and included business models leaning on the strong reputation of the company and a good knowledge base of the business.

It was clear from the analysis of the capability portfolios that, despite their focus on core businesses, leading wood-industry companies had to develop and maintain a wide selection of resources and capabilities in order to compete in today's rapidly developing markets. It takes time to change a portfolio, regardless of whether the ultimate aim is to prune or to enrich it: it depends on the extent of path-dependency and immobility of capabilities and resources. Indeed, a set of firm-specific capabilities under development aimed at increasing flexibility and proactiveness. The market scanning and maintaining market intuition, however, were strengthened mainly to support production optimisation and the monitoring of price levels, and not with a view to recognising and acting on market opportunities. Furthermore, customer-driven, incremental process and product innovation was preferred over firm-driven innovation through experimentation. This would potentially result in a more homogeneous capability portfolio in the future, and less chance of quickly establishing new competitive advantage if the market/industry context changed in an unexpected way.

Diversity or efficiency: structural premises for knowledge processes in established, large companies (Sub-study III)

The purpose of this study was to analyse the internal structure and development of capabilities more closely, and to establish how changes in formal, hierarchical organisational design affected the diversity in knowledge search (exploration) and the efficiency of knowledge transfer and integration (exploitation). From a practical perspective, the aim was to provide structural guidelines for knowledge management in large-sized, established companies operating in mature industries, namely the wood industry. The particular focus was on the interplay between the changes in the formal organisational design (centralisation, formalisation, complexity and physical proximity) and the sociostructure (relational and cognitive embeddedness). Basic theoretical propositions concerning how the structural choices a company makes affect its knowledge processes were explored and developed further in the light of the findings of a multiple case study.

The data consisted of documents collected from 27 North American and European wood-industry companies, 43 interviews conducted in 11 of them and 19 expert interviews.

A change in the formal organisational design had an impact on the sociostructure, and accordingly on knowledge processes, by transforming the occurrence and the context of ties between knowledge seekers and sources. More specifically, the formal design affected the sociostructure by altering the intermediate structural variables: the accountability and predictability of individual behaviour, the number of potential contact channels, and the ease of access to information sources.

Centralisation, formalisation and reduced complexity improved the hierarchical predictability of actions, but lowered personal accountability, reduced the number of available communication channels, and adversely affected the ease of access to potential information sources. Resource allocation had a significant impact on interaction frequency: a lack of slack resources led to the pruning of communication channels and decreased the ease of access to information and knowledge sources, while physical proximity improved ease of access, but decreased hierarchical predictability as it altered the content as well as the formal channels of communication.

Both personal accountability and hierarchical predictability strengthened relational embeddedness, while ease of access positively affected both relational and cognitive embeddedness. However, the latter was weakened by a high number of contact channels.

In terms of creating new capabilities, exposure to new experiences and the integration of the new knowledge are key factors. Cognitive and relational embeddedness together improved knowledge transfer and integration, enabled smooth organisational transition, and improved efficiency by revealing the range of employee expertise and enabling the contextualisation of information and knowledge. They were also positively related to the spread and acceptance of new ideas. Accordingly, they improved both exposure and responsiveness to new knowledge, provided that the communication network was not closed, and that the ease of access to the information and knowledge sources could be maintained. People who were simultaneously insiders in two separate communication networks held the key to the dissemination of new knowledge. Moreover, the realised degree of centralisation and formalisation in the organisation depended on its cognitive and relational embeddedness, as the members interpreted and applied the rules and procedures, judged the proper organisational level of decision making, and evaluated the implications and consequences of their decisions.

The key findings implied that the organisational structures of the case companies supported knowledge exploitation better than exploration, and accordingly, reinforcing existing capabilities was easier than creating new ones.

A capability-based view on organisational renewal: maintaining long- and short-term potential for growth in large, established companies (Sub-study IV)

The purpose of this study was to contribute to the understanding of sustainable growth and organisational renewal in large established companies. Ideas from the literature on corporate and strategic entrepreneurship, organisational learning, innovation and marketing were brought together to develop a capability-based view for analysis. The study considered more closely the implications of combining the two types of growth – advantage- and opportunity-seeking – to enhance value creation in a radically changing

environment. The specific focus was on large established companies operating in mature industries, namely the wood industry.

Even though new ventures can often justify a make-or-break business strategy, most established companies have too much to lose to afford a sole emphasis on radical business change. Thus, it could well be argued that if the market environment is perceived to be stable and the change is progressive (the environmental change occurs within the existing business framework, companies do not question the prevailing industry recipes, and the product life cycles are long), firm-internal change should be aimed at advantage-seeking growth.

However, a broad consensus prevails that the ways in which companies conduct business are fundamentally altering, and that the new competitive landscape carries substantial uncertainty. If the environmental change threatens core activities and/or resources, rendering them obsolete or reducing their value, early-moving firms benefit from employing a staggered, risk-minimising strategy that combines advantage- and opportunity-seeking growth in various degrees. This is also an effective strategy in preparing for the possibility of exogenous shocks in the market environment. It was suggested in this study that full focus on opportunity-seeking growth may be justified, even in large, established companies, if the company has no existing competitive advantage, if its value is rapidly deteriorating, and if it has no clear core business to be cannibalised. It would then try to establish a new product market position and focus on exploring new opportunities.

The concept of capability-building was used in the study with a view to analysing the implementation of a growth strategy in the changing environment. Comparative advantage results if a company can produce a market offering that is perceived by some market segments to have superior value and/or can be produced at lower cost. Each customer offering is a manifestation of the firm's capabilities, and value creation in the business is greatly enhanced by innovative offerings. The ability to facilitate the flow of incremental innovations is a prerequisite for advantage-seeking growth, whereas opportunity-seeking growth requires radical innovation. Incremental innovation is supported by entrenching existing capabilities, and radical innovation by creating new ones. Since the different types of resource-bundling processes in capability building emphasise either the assimilation of new learning or the utilisation of what has been learned, they can be analysed through the exploration-exploitation paradigm. Exploitative organisational behaviour is the necessary prerequisite for entrenching capabilities, whereas explorative behaviour increases the feasibility of creating new ones. Furthermore, investments in knowledge-attainment resources should correspond to investments in new production technology in other areas if companies are to entrench their current capabilities and develop those that are new and strategically relevant.

Opportunity- and advantage-seeking growth can be combined under the assumption that a company should support both explorative and exploitative organisational behaviour. This requires an environment that simultaneously supports creativity in individuals and ensures control of execution. This calls for managing both structural and motivational organisational aspects. Large, established organisations generally nurture exploitation better than exploration, and the main support should usually be directed to experimentation. Hence, whatever the design, it should allow space for serendipity, bring contrasting pairs of people together, and ensure that an idea generator has multiple channels through which to seek support for new projects. The motivational aspect should be developed by encouraging trialling, and tolerating mistakes: organisational slack allows for this. The spread and

acceptance of new ideas requires trust and a common cognitive frame among organisational members.

Both exposure and dissemination of new knowledge occur along the boundaries of an organisation (distuingishing departments, teams and business units, for example), and thus become the key to understanding the implementation of the dual-growth strategy advocated in this paper. If it is a question of radically different mindsets, no fruitful interaction occurs, the boundaries become a source of separation and misunderstanding, and capabilities cannot be created or improved. If the mindsets are too similar, on the other hand, much of the opportunity to generate novel ideas and capabilities is lost, since no new perspectives emerge. The existence of shared processes and brokering increase the possibilities of building bridges across boundaries.

DISCUSSION: CAPABILITY BUILDING FOR ORGANISATIONAL RENEWAL AND SUSTAINED GROWTH

The interplay between tangible and intangible resources in capability building

According to the capability-based perspective on growth, the company's resource base is the building block for creating new capabilities and reinforcing current ones. As the knowledge-based view has gained prominence, the role of tangible resources in capability building has received less attention. Although this study began with the assumption that at the heart of a capability was knowledge creation and transfer on the different levels of the organisation, the interplay between tangible and intangible resources was emphasised more than in recent literature on routine and capability.

Traditionally, the success factors and strengths of the Scandinavian forest industry in particular have been in its tangible resources, namely in the sophisticated paper and sawmilling production technology and the high-quality wood raw material. Nowadays, the industry is often accused of short-term thinking, and of losing its competitiveness due to "a lack of investments in new technology" (see e.g., Timber Trade Journal 3.9.2005, Talouselämä 3.9.2004). Most of these warnings have been directed towards the pulp and paper industry, although the overall pressure to cut down on new investments in favour of repair expenditures is very strong in the wood industry as well, as margins have tapered.

Utilising and following the latest technological development were identified here as basic capabilities in the wood industry, and as important contributors to cost efficiency in the long run. The case companies had a recent history of heavy investments in updating existing technology, acquisitions and mergers, and even in building new mills. Thus, the lack of investment in itself was not yet strikingly visible, and even though growth had been subsequently put on hold due to the difficult economic situation, the companies had more than enough capacity to meet demands. Further, they made their investment decisions in an international context, the heaviest ones in terms of production being increasingly directed towards regions other than the traditional home bases of the forest industry. It should also be noted that, even though growth in terms of revenue and capacity did not significantly increase, or even stagnated, during the research period, the break from acquisitions and heavy investments could be interpreted as an essential period of resource-base restructuring – creating value through building up new capabilities from resources just acquired. This could also require divestments.

The results of this study once again proved the importance of having a balanced investment programme. In practice, deep knowledge of the competitive environment (intangible resources) is meaningless if the company cannot develop the actual offerings due to a lack of required technology or raw material (tangible resources). Investing in up-to-date production and process technology was considered to be an operative imperative in the wood industry, although the expenditures required for developing the knowledge base was thought to be the differentiating factor. Such expenditure could include investment in a new, extensive data-mining system just as in recruiting personnel, funding the MBA studies of an employee, or buying a new laptop for the sales person. These investments are often smaller and more numerous, and the decision-making authority related to them may be more dispersed than in the case of investments in machinery, for example. However, their cumulative effect may be significant, as they enable the building and utilisation of the collective knowledge of the company, and could also serve as an important motivational factor for an individual employee.

The breadth of the knowledge base: the effects of key customers and segmentation on capability building

The results of this study implied that companies preparing for sustained growth created capabilities with the aim of combining rapid knowledge conversion with scale advantages. They did this by instituting organisational changes and getting closer to the markets. Co-operation with key customers is frequently mentioned as the major trigger of innovative business development, and this study was no exception[xi]. Walter et al. (2001) point out that customer relationships serve many different functions, and provide many different resources for the supplier's capability building:

- *A profit function* that drives the cash-generating effect of the relationship
- *A volume function* that is of special importance in industries that rely on economies of scale
- *A safeguard function* that provides business in depressed market conditions
- *An improvement function* that puts pressure on the supplier to stay at the forefront of technology and to continuously improve its services and products
- *An access function* that connects the supplier to a meaningful knowledge network

The strongly advocated segmentation enabled the case companies to get a deep understanding of their customers' needs, and to integrate into their value-creation processes. The customer-knowledge base was to become well managed in terms of quantity, although using feedback from key customers as a primary source of product and process development had its dangers: the companies became less exposed to diverse information flows.

The variety of information was considerably increased if the focus was not only on key customers, but also on forming direct links with customers' customers and the wide set of stakeholders involved (such as architects). Furthermore, the case companies had a range of non-key-customers. These relationships were maintained mainly as a buffer against demand fluctuations, and to decrease financial dependence on the few. The wide selection of raw materials also forced the sawmilling companies to maintain a wider product/customer palette than they optimally wished to do. In terms of efficient production this was negative,

but on the other hand, it could well be a conscious knowledge-management strategy to ensure robust information flow to the organisation, and to allow for the testing and development of new capabilities.

Customers provide the supplier with financial capital, but just as important is the accumulation of the intellectual capital. Depending on the company's overall objectives, size and age, the market uncertainty and the business scope, the relative importance of each customer function varies. Over-emphasising any one could undermine future competitiveness. A valuable customer in terms of manufacturing may be different from a good customer in terms of R&D, marketing or accounting, as suggested in Blois (1999). The first three functions (profit, volume and safeguard) were self-evident customer-selection criteria in the case companies, but in terms of capability building, companies should perhaps also consider improvement and access functions.

In support of this recommendation, Bierly and Chakrabarti (1996) suggest that the final element of a firm's knowledge strategy is the decision concerning how broad or narrow its knowledge base should be. A broader knowledge base puts it in a better position to combine related technologies in a more complex manner, while too narrow a base may result in core rigidities and decrease strategic flexibility and adaptability to environmental changes (Leonard-Barton 1995, Volberda 1996). According to Grant (1996b), the greater the scope of knowledge being integrated into a capability, the greater its inimitability.

Another recent trend in the case companies was mill specialisation, which is closely linked with customer segmentation. Production flexibility is an often-repeated requirement in the industry, although the increasing firm size and focus on specific product areas have significantly changed the way in which this aim can be achieved. As the companies have grown, flexibility has been achieved in the firm context through mill specialisation (i.e. placing orders among the Group's production units, often across several countries), whereas the individual actors on the mill level are rewarded for the effective production of a narrow range of products. Production planning and customer-relationship management are also increasingly being centralised and taken away from the mills. This change is justified in terms of scale efficiencies, logistical gains, maintaining stable quality, supporting a strong corporate culture rather than a strong mill identity, and tying the key customers to the whole corporation instead of an individual mill. Thus, specialisation has clear benefits. However, it also includes some potential downsides. Mill-specific relationships with customers have been broken down, and it is not only the production that has been standardised, but also to some extent, the way in which these relationships are managed. The weak signals from the markets may become more difficult to recognise. Moreover, depending on the incentive systems in the company, it may also take away the motivation to develop business on a daily basis at the mill level, and create new 'information silos' within the company. This could result in a narrower resource base. A similar change occurred in the paper industry, and its effects were analysed by Laurila and Lilja (2002). The results of this study support their findings.

Choosing the organisational design to support capability building

Focused or dispersed design

Entrepreneurial, innovative business development can be implemented in established companies through alliances or acquisitions, or by internal means either in a stand-alone, focused unit or through a dispersed organisational design (Hoskisson and Busenitz 2002). Thus, the way a company chooses to grow does not determine the degree of entrepreneurship, per se. Entrepreneurial growth and innovation can also be achieved through acquisitions, and organic growth may just as well result in more volume of the original activity (ibid.).

Networking ability has frequently been mentioned as a valuable asset in wood-industry companies. Large companies could become entrepreneurs at the network level, engaging and enabling their smaller counterparts to do the opportunity seeking for them. Their task would then be to become generalists, by combining the specialised knowledge of the smaller companies. The opportunity for differentiation may arise, especially in those large companies that successfully engage in networking between organisations, when the balance between retaining and sharing is even more delicate than within organisations. As McGrath and MacMillan (2000) state

> *"Your most important job as an entrepreneurial leader is not to find new opportunities or to identify the critical competitive insights. Your task is to create an organization that does those things for you as a matter of course"* (McGrath and MacMillan 2000: 301)

However, the increasing competition in the forest industry and the recent legislative changes have already affected the way in which knowledge is shared with customers and competitors through joint projects. The unique, innovation-breeding environment of Silicon Valley is not likely to benefit the wood industry in the immediate future[xii]. The development of a sub-supplier network takes time and is difficult, as the well-known example of Toyota proves (Dyer and Nobeoka 2000).

The 1990s were known for the big mergers and acquisitions in the forest industry. However, the acquisition boom lead to higher costs of expansion through the purchasing of high-quality companies, whereas greenfield investments became relatively cheaper (Siitonen 2003). North American companies started to focus their investments on the maintenance of their existing capacity in the 1980s, and their European counterparts increasingly followed the trend. Opportunities for modest investments as a way of betting on evolving technologies has largely passed, and new technologies are usually available only at the market price (Hoskisson and Busenitz 2002). Furthermore, innovation-enhancing acquisition is meant to target capabilities that differ from the current capabilities of the firms, and thus go counter to the usually advocated related acquisitions. Legitimation of such acquisitions may be difficult to gain among boards of directors and market analysts.

A stand-alone new venture could be established with the intention of combining the scale of the parent company with the flexibility of a small firm. However, the external venture may excel in encouraging exploration, but the exploitation may suffer, if the learning distance between the venture and the parent company is too wide (Hoskisson and Busenitz 2002). As a result, a semi-autonomous new venture may hamper the commercialisation of the innovation, create difficult co-ordination problems, and blur the strategic direction of the company. It is also possible to distribute the responsibilities for

entrepreneurial/innovative actions within the organisation. This type of dispersed, contextually ambidextrous design makes it easier to identify a wider set of opportunities (Birkinshaw and Gibson 2004). The merits of a dispersed design in the management of the exploration-exploitation tension are discussed in the following. Many of the findings are also applicable in the implementation of the above-mentioned focused design: the new venture matures in time, it has to be joined to the existing one in one way or another, and thus interaction is bound to occur between the two organisations.

Managing contradictory structures in the combination of exploration and exploitation

Managing the formal organisation benefits from an active, strong, top-down management, but with the informal organisation it is more a question of enabling than enforcing, and recognising the emerging communities and allocating them time and other resources. According to Alajoutsijärvi and Tikkanen (1999), the organisational changes in the Finnish forest industry were rational or instrumental, and took little account of internal social processes. The findings of this study imply that changes in the formal design have a clear but often uncontrollable link to the social processes.

It was found that when the formal organisational design was changed, the occurrence and the context of ties between knowledge seekers and knowledge sources changed. More specifically, the formal design affected the informal organisation by altering accountability and predictability in individual behaviour, the number of potential contact channels, and the ease of access to information sources. These aspects, in turn, influenced the quality of the relationships and interaction between the employees. Consequently, managing information and knowledge flow (in terms of retention, but also of finding and sharing) within the organisation seems to have become a basic capability requirement in the wood industry, and to be one of the major drivers of change in the organisational design.

The organisational restructuring in the case companies did not necessarily change the actual communication patterns, as the new internal networks often connected people who were already familiar with each other in the previous organisational set-up. Yet, the new responsibilities gave them a chance to exploit previously under-utilised sides of their experience and to draw out new information from each other. Thus, *in the short term*, the benefits of connected, relationally and cognitively embedded networks within organisational units were considerable, as they prevented the loss of efficiency but also enabled the recombination of knowledge. The strength of trust between individuals and a good ability to develop a common understanding and interpretation of the situation had clear advantages. It helped in the implementation of the instructions and in distributing and defining the organisational roles in a meaningful way, and it improved the spread and acceptance of new ideas. Support for these finding is to be found in Huber (1991), who suggests that the probability of information transfer is positively related to A's view of the relevance of the information to B, and to the frequency with which A has previously routed information to B in the recent past. As rent-producing resources and capabilities develop over time, their optimisation is dependent on the political and cultural willingness of the organisational members to commit to using them. This is much more likely to happen when the relationship is characterised by strong trust (Oliver 1997).

However, these same qualities that encourage knowledge sharing and transfer may also lead to group thinking and prevent knowledge spillovers. The balance between diversity in knowledge search and the efficiency of knowledge transfer and integration is directly

linked to the ability to develop novel products and services (Kazanjian et al. 2002). The two main constraints on the diversity were the lack of slack resources and the aim towards lean, centralised designs.

Interestingly, Mosakowski (2002) argues that large firms experience problems with core rigidities, reduced experimentation, lower incentives to develop new resources, and enhanced strategic transparency to competitors due to their *large* resource base. Because smaller companies have fewer resources, they experiment more and have greater incentives to act. According to this logic, the resource allocation within a firm would have big effect on the exploration-exploitation balance, but in contrast to the findings of this study, the lack of resources would mean more exploration. It is suggested in this study that large firms with greater slack have more tolerance of experimentation, and they are ready to take greater risks. This, in turn, has an effect on reward systems, and on expectations about the behaviour of individual employees and their motivation. As Mises (1949) noted, for an action to occur, the person must be dissatisfied with the current condition, must have an image of a more satisfactory state or outcome, and must hold an expectation that his/her actions have the power to remove the dissatisfaction. The third condition is a frequent problem in large organisations, and the lack of resources aggravates it: people, departments and subsidiaries tend to focus on their immediate tasks. A lack of resources (most notably in terms of time and finance) affects routine development, as it decreases the chances of an individual taking the trouble to start building a new routine, or engaging people around himself or herself. People under pressure are more likely to follow old routines than to develop new ones.

The less complex the organisation, the easier it is to monitor communication, increase cost-effectiveness, and in some cases promote faster decision making. However, one important characteristic of an innovative organisation is the ability to provide multiple communication channels, which are needed both for developing and promoting creative, novel ideas. The increased workload of the key personnel in the centralised, lean case companies hampered communication and reduced the number of available contact channels and managerial support from the viewpoint of an individual employee. As the volume of exchanged data increased, people became generally more selective and careful at forwarding information. The lack of time and the resulting strict prioritising prevented the maintenance of a wide range of contacts. This is also in accordance with the findings of Huber (1991), who suggests that an increased workload is negatively related to the probability of routing information and positively related to the extent of knowledge distortion. Further, it has been found that strengthening centralisation and formalisation implies less involvement (personal accountability), which in itself is a source of intrinsic motivation and a key driver of entrepreneurship (Smith and Di Gregorio 2002). As companies grew, they became geographically more dispersed, there was pressure to create bigger units, the distances between actors widened, and the daily form of communication changed. The increasing reliance on information technology directed and focused information search as people were encouraged to use intranets and e-mails.

The lack of resources, together with the streamlined organisation, implied that the diversity of exchanged information was decreasing, the number of weak signals (or knowledge spillovers) was diminishing, and their interpretation became more difficult. The novelty of entrepreneurial action depends on the nature of the information that is analysed and integrated. The greater the variety of information, the more novel is the entrepreneurial action that results from bisociation (Smith and Di Gregorio 2002). Thus, *in the long run*, the creation of new ideas was potentially endangered in the case companies, assuming the

networks were not actively extended outside the formal organisation, and that alternative sources of information were considered.

Ahuja (2000) noted in the context of interorganisational collaborations that the benefits of increased trust, developing and improving routines and reducing opportunism that come from having a group of cohesive interconnected partners outweigh the disadvantages of not having the informational diversity that comes from having many structural holes in the firm's network. This study supports these findings in the intraorganisational context by showing the benefits of cognitively and socially embedded networks. Similarly, Jansen et al. (2005) found that connectedness (in this study divided along cognitive and relational dimensions) not only fosters commonality of knowledge and reduces the costs associated with exploitative innovations, but also motivates employees to be of assistance to each other and to find opportunities for exploratory innovation. The main difference between Ahuja's (2000) findings and those reported in this study is the exposure to malfeasance: the avoidance of opportunism is an issue in the interfirm collaboration, whereas this benefit of closed networks is less apparent (although not insignificant) when the social networks are considered from an intrafirm perspective, and the brokerage benefits of indirect ties increase.

In short, in addition to establishing ties with external sources of new knowledge, organisational units (whether they be subsidiaries, departments, or teams) require dense networks of ties within them to enhance both exploration and exploitation (Jansen et al. 2005). Employees who act as brokers (or boundary-spanners) between sparsely connected groups may be particularly valuable to their firm.

It was also suggested in this study that the standard centralisation/formalisation scales should be used with some caution[xiii]. The level of centralisation, defined as the level of decision-making and the degree of employee participation in it, depended on individual judgement concerning the organisational level on which the decision was to be made, and on the managerial workload. In a similar way, formalisation defined as the usage of documented standards for controlling and co-ordinating employees was a relative measure. Codes, handbooks, manuals and verbal instructions were continuously reinterpreted and updated, depending on the workplace practices, and the reinterpretation could be intentional or unintentional, depending on the similarities between the code creator and the adapter. Finally, what one employee saw as a hierarchical, complex organisation could be a flat, informal design to another due to his/her personal history in the company. Thus, the use of one centralisation/formalisation figure resulting from a survey as an approximation of the whole company requires careful consideration.

Entrepreneurship and the role of environmental scanning in capability building

Entrepreneurial firms are proactive, risk-taking, and innovative (Barringer and Bluedorn 1999). Capabilities take time to build, and resources may be scarce. As Sirmon et al. (2005) note, only the development of new capabilities in advance allows firms to respond effectively and in an acceptable time period to environmental changes, and to exploit unforeseen opportunities when they occur. Thus, from the capability-building perspective, a firm that intends to become reactive (responsive) also needs to be proactive. The other aspects of entrepreneurship – risk-taking and innovativeness – depend on the evaluation of the environmental changes. At the end of the day, it is the managerial interpretation of the gathered market information that determines whether something is classified as an

opportunity rather than a threat (Atuahene-Gima 2005). Thus, entrepreneurship is closely linked to the role of environmental scanning and planning.

Unlike firms operating in turbulent environments, companies competing in conditions of stability have more of an incentive to focus on maintaining their current competitive advantage rather than to create a new one. Accordingly, they are more concerned about threats to their current advantage than about opportunity recognition, and they have (Barringer and Bluedorn 1999)

- longer planning horizons
- scanning activities that typically focus on subtle shifts in environmental trends, quality improvements and the potential to gain market share, instead of the sensitive screening of opportunities
- less planning flexibility, which would decrease the reliability of routines, and less participation in planning

The length of the planning horizon is an interesting question in the forest industry, as companies have to match Nature's pace (it takes about 70–80 years for a Nordic conifer tree to reach the logging diameter) with stock-markets demands. The aim as a whole is towards shorter planning horizons, but companies must nevertheless also maintain their long-term planning skills. As to the second point, the findings of this study imply that the case companies maintained and developed their planning and analytical capabilities, and continued their active monitoring of the market especially in terms of key customers and price levels. Thirdly, they emphasised the need to become flexible and executing decisions quickly, but the changes in their organisational design were towards centralisation. Thus, it could be said that, although the intention was to improve flexibility, the case companies were better suited to competing in stable market environments.

LIMITATIONS OF THE STUDY

Two levels of limitations are acknowledged here, that of theory and concepts, and that of data gathering and analysis.

Theory and concepts

The thrust of the criticism against the organisational-capabilities approach is typically directed towards the extreme propagation of labels[xiv]. This easily leads to tautology and the use of unclear, all-inclusive concepts. Furthermore, product development and logistics, for example, are often recognised as important capabilities, but then again, there is a well-established stream of literature on logistics and product development. Why then do we need capabilities?

This study starts to build on a concept of routines that includes ambiguities, but has an essential role in modern organisational theories and its roots in relatively well-established literature, and there are increasing attempts to clarify and empirically verify it (see e.g., Becker et al. 2005, Pentland and Feldman 2005, Becker 2004, Cohendet and Llerena 2003, Nightingale 2003). A distinction is made between resources and capabilities, but it is suggested that the distinction between capabilities and competencies is semantic (see e.g.,

Atuahene-Gima 2005, Danneels 2002, Grant 1996b, Day 1994). Despite the recent emphasis on dynamic capabilities, it is assumed here that, while some capabilities may specifically deal with adaptation, learning and change, they all have the potential to accommodate change, and the life cycle is applicable to all capabilities, dynamic or not (Helfat and Peteraf 2003).

Although the definition of a capability applied in this study may have avoided some of the worst conceptual ambiguities, it nevertheless does not completely escape the criticism levelled by Foss (2003): quite a lot – and perhaps too much – is packed into the notion of routine (and capability), including a variety of behaviours, organisational processes and arrangements, cognitive issues and incentives. This has also affected the theoretical background of this study, which extends across a variety of literature streams. There was a trade-off between theoretical depth and breadth, and acknowledgement of the fact that one of the strengths of the capability concept is its ability to build bridges between different streams of research. Sub-studies I and IV have the broadest theoretical basis, while Sub-studies II and III apply a more focused approach.

This study follows Richardson's (1972) reasoning:

> *"The notion of capability is no doubt somewhat vague, but no more than that of, say, liquidity and, I believe, no less useful"* (Richardson 1972: 888)

According to Nelson and Winter (1982), skills, organisation and 'technology' are intimately intertwined in a functioning routine, and it is difficult to say where one ends and another begins. The case-study method was used in this study in recognition of the multidimensionality and complexity of the concepts of routine and capability. Moreover, the focal interest was not in isolating a special set of capabilities or resources and proving that they were the ultimate sources of success. The aim was rather to identify a set of capabilities that the managers of the case companies would perceive as sources of success within the wood industry. The emphasis was on the broader logic of capability building that could be generalised from one capability to another, and on linking environmental contingencies to the required level of novelty and the variety in capability portfolios.

It could also be claimed that naming resource-bundling processes as 'entrenching', 'creating' and 'trimming' added little that was new to the existing literature. Indeed, one could name resource-bundling processes as 'exploration' and 'exploitation-oriented', and perhaps add 'elimination' to describe the trimming of capabilities. However, the exploration-exploitation concept strongly directs one's thinking towards information and knowledge search and transfer. Capability building is not all about organisational learning, and the importance of tangible resources must be acknowledged.

Another problem with the capabilities approach has been its collectivism, which ignores its micro-foundations, and people disappear from the research agenda (Foss 2003). It is also particularly vulnerable to criticism associated with ascribing individual attributes to collective entities. This study examined the capability concept within a cross-section of the literature on organisational learning and organisational knowledge. It thus stressed knowledge as a resource that provides competitive advantage, and analysed the processes (creation, retention, transfer) associated with its management (e.g., Grant 1996a, Crossan et al. 1999). It followed the argumentation put forward by Morgeson and Hofmann (1999) when tackling problems related to collective constructs. Such constructs emerge, are transmitted and persist through the actions of members of the collective. Thus, the most elementary unit of analysis in any social system is the individual behavioural act. Individual action is limited by the surrounding context, however, and the range of actions is influenced by a multitude of situational or contextual factors. The actions of individuals meet in space

and time, resulting in interpersonal interaction, which again results in a discrete event, and subsequent interaction produces an event cycle. The structure of any given collective (such as a team) could be viewed as a series of ongoing events and event cycles between individuals. Larger collectives (such as departments of organisations) contain subsystems made up of their own sets of events, and event cycles. Once established, collective constructs such as routines can influence interaction (Gersick and Hackman 1990). Here, Sub-studies I and II maintained the firm-level analysis, and the capabilities approach offered a short-cut to analysing complicated patterns of resource co-ordination and co-specialisation, while linking capabilities to the competitive advantage of a company. Sub-study III focused on the interactions occurring between individuals in the organisational context, and examined the micro-foundations of capabilities.

Data and analysis

In terms of data collection, Zalan and Lewis (2004) list five major obstacles in conducting qualitative research in an international business setting:

- Getting access to organisations and to the managerial elite
- The cost of travelling to meet all the relevant informants and tight interview schedules
- Dealing with issues of highly a political or emotionally charged nature (not being able to describe the case companies in detail, the delicacy of organisational changes)
- Data contamination in the form of repeated interviews
- Language barriers

The first three obstacles may potentially affect the selection of cases and informants, and the type of data used. In this study, access to the companies was typically negotiated through the CEO or the divisional manager. With one exception, the interviewer had no previous contact with the case companies. It was easier to obtain the contact information from the Scandinavian companies than from the Germanic and North American ones. During the course of the study, three interview requests were discussed at board level. The companies that were inclined to refuse the requests were typically family-owned, smaller firms in the Germanic region. They did not significantly bias the case selection as the main focus of the study was on the largest companies, not on cultural differences. Nevertheless, better access to privately-owned companies might have given a more dynamic picture of the companies operating in this industry.

The ongoing consolidation and restructuring of the industry improved the topicality of this study, but it also posed challenges. It became evident during the long-term follow-up of the 27 case companies that those that had denied access were often in the middle of a heavy restructuring programme, and announced major mergers or split-ups soon afterwards. As most of the case companies had just experienced heavy organisational changes, the internal role allocation was still being developed. Managers were uncertain about the effects of the interviews in a situation in which the organisation was trying to reach internal balance. Furthermore, the increased competition made the companies more protective. Given these obstacles, one of the limitations of this study is that the detailed case descriptions were written only for firm-internal use.

Data contamination in the form of repeated interviews was avoided by having different informants during each interview round and changing the focus from the general to the more particular. Language barriers caused the biggest problems in the Germanic companies, where it became evident that the informants had to restrict their answers due to their lacking vocabulary in English. The interviewer could understand German but was not a fluent speaker. As soon as the problem was recognised, the informants were asked to speak German, and an interpreter was present during the interviews in case the interviewer wished to confirm that she had understood the issues or needed to translate the questions in detail.

Each data source used in this study had its limitations. Personal interviews are susceptible to bias through embellishment, forgetting and even lying, especially in conflict situations. As annual reports and other company documents are not only information conveyors but also serve a marketing function for various stakeholder groups, they tend to present the issues in a favourable light, and some matters are stressed at the expense of others. In order to avoid these problems, this study relied on multiple sources of information. Thus, the events mentioned in the annual reports were compared with articles in trade journals and personal interviews. Expert interviews were used along with the company interviews, and the information obtained was corroborated with documentary evidence. Due to the tight interview schedules and lack of resources, the opportunities to make observations in the case companies was limited. It is clear that the study would have benefited if the researcher had spent a prolonged period in the case companies. Observing the interaction would have improved the quality of data related to the micro-foundation of capabilities. This limitation was partly counteracted by conducting repeat interviews in the same companies. Furthermore, the interviews took place locally, which facilitated observation to support them. They were also advantageous given the research topic: since it was important to analyse how people understood and experienced the organisational design, they facilitated retrospective reflection, and given the constraints, they were the only practical method available.

Only one person coded the data, and this was a potential source of validity problems. However, the key informants reviewed the draft case-study reports, and the conclusions derived from the data were presented to the participating firms. The thematic codes were made implicit, and the coding took place three times, as the perspective to the data changed and intensified in each sub-study. The use of computer-aided data analysis could have made the coding more transparent.

Finally, the findings are based on a case study, which obviously limits the generalisability of the results. Yin (1994) compares cases with experiments that are generalisable to theoretical propositions but not to populations. Accordingly, the goal of this study was to expand and generalise theories (analytic generalisation) rather than to achieve statistical generalisation. Firm-specific capabilities are, by definition, not generalisable. The industry-specific capabilities described in this study represent those that formed the competitive basis of large, established, Western wood-industry companies. The capability-building process and the environmental contingencies should be applicable across industries, but it should be noted that the perspective of this study is that of large, established companies, and the firms under investigation could have idiosyncratic characteristics that affected their capability-building efforts and organisational arrangements.

SUMMARY AND CONCLUSIONS

The purpose of this study was to strengthen understanding of organisational renewal and its management in large, established companies aiming for sustainable, profitable growth. A multiple-case study was conducted in large, well-established North American and European wood-industry companies in order to find out (i) their objective for sustainable, profitable growth, and (ii) how this was facilitated and implemented through the development of capability portfolios and individual capabilities.

The data was collected from 27 leading North American and European wood-industry companies, of which 11 were chosen for closer study. They all shared the aim for sustained, profitable growth, and they had recently implemented or were currently implementing, organisational changes in order to better accomplish this aim. Their organisational arrangements and capabilities were analysed in the light of the following, theoretically-driven assumption: in order to achieve sustained, profitable growth, a company is able to maintain competitive advantage in the long run by combining entrepreneurial and strategic thinking, i.e. opportunity- and advantage-seeking. Opportunity-seeking growth originates from supporting renewal and innovation, whereas advantage-seeking growth is based on effective co-ordination and loss prevention.

The study developed further an identification and classification system for capabilities that comprises three dimensions: (i) the dynamism between firm-specific and industry-significant capabilities, (ii) hierarchies of capabilities and capability portfolios, and (iii) their internal structure. Capability building was analysed in the context of the organisational design, the technological systems and the type of resource-bundling process. By utilising the analysis and linking it to previous research on corporate entrepreneurship the thesis produced information about the current and future potential of large, established wood-industry companies to engage in sustained, profitable growth. In addition to describing the current capability portfolio and the organisational changes in the companies, the thesis contributed to the understanding of the relationship between organisational design and capability-building processes. It clarified the mechanisms through which companies can influence the balance between knowledge search (exploration) and the efficiency of knowledge transfer and integration (exploitation), and consequently the diversity of their capability portfolio and the breadth and novelty of their product/service range.

By illustrating how a company could combine formal and informal designs, the study has contributed new insights in terms of the potential of an organisation to become ambidextrous. Changing the formal organisational design transformed the occurrence and the context of ties between knowledge seekers and sources. It thus had an impact on the accountability and predictability of individual behaviour, on the number of potential contact channels, and on the ease of access to information sources. Strongly cognitively and socially embedded relationships served a dual role in enhancing both exploration and exploitation within organisational units, and they were disadvantageous only in terms of reduced opportunity for knowledge and information spillovers (and accordingly, for the occurrence of blind variation in capability building).

The findings of this study confirmed the old adage: the better a company is able to combine investments in knowledge attainment with corresponding investments in new production technology, the better it is prepared for sustainable, profitable growth. It

appeared that the companies included in this study currently had a wide set of capabilities, but they were increasingly based on a narrow resource selection: specific knowledge about their key customers, and a homogenous, specialised resource base in technology that was aimed at cost efficiency. From among the firm-specific and industry-significant capabilities, a set was identified that were aimed at supporting market sensing, planning and optimisation. Although environmental scanning was considered important, it appeared to be tuned to identifying ways of improving quality and gaining market share, rather than sensing opportunities. Furthermore, customer-driven, incremental process and product innovation was preferred to firm-driven innovation through experimentation. Combined with the lack of slack resources, the organisational changes encouraged exploitation better than exploration. All this would imply that the companies reinforced their existing capabilities better than they created new ones, and that they would build up a more homogeneous capability portfolio in the future.

Thus, the case companies were better prepared for establishing and sustaining current competitive advantage than for quickly creating new competitive advantage through responsiveness and adaptability if the market/industry context were to change in an unexpected way. This type of development is justifiable for established, large companies if the market environment is perceived to be stable and the change is progressive (the environmental change occurs within the existing business framework, the companies do not question the prevailing industry recipes and the product life cycles are long). However, a broad consensus prevails that the new competitive landscape of the forest business carries substantial uncertainty. If environmental change threatens companies' core activities and/or resources, rendering them obsolete or reducing their value, early-moving firms benefit from employing a strategy that combines opportunity- and advantage-seeking growth in various degrees. Thus, a company should be able to nurture both explorative and exploitative organisational behaviour.

Wood-industry companies have continued restructuring and changing their organisational designs and strategies, and the trend is to move away from volume- to value-oriented growth. During the period of this research, however, the case companies were better in supporting growth in volume of the existing activity than growth through new economic activities that would result in novel offerings. The advantage-seeking behaviour was overcoming the opportunity-seeking.

This study offers a number of avenues for further research. Firstly, the suggested contingencies between environmental variables and the growth strategy could be verified. Sub-study II focused on describing capabilities that had been created or entrenched. It would be of interest to know what kinds of capabilities have been trimmed, if any. Moreover, the propositions developed in Sub-study III could be refined and tested on a larger sample, and the concepts of cognitive and relational embeddedness could be further specified.

Secondly, the findings of this case study suggest that the current growth strategy in the forest business is advantage-maintaining. The underlying reasons for and exceptions to this focus could be analysed along with the role of managers, the organisational culture and the social exchanges following major reorganisation.

Thirdly, some forest-industry companies have established R&D departments. It would be of interest to examine how the locus and nature of innovation change after the establishment of an R&D department, and how prepared these departments are to support radical innovations. Particular emphasis could be placed on the knowledge processes of R&D professionals: creation, retention and sharing.

Finally, the tension between exploration and exploitation is also evident in small- and medium-sized companies. Rapidly grown, medium-sized, family-owned wood-industry companies would offer an interesting context in which to examine the concept of strategic entrepreneurship.

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NOTES

[i] Roadmap 2010 is a strategy and action process for the future development of the European woodworking industry. It was developed under the supervision of CEI-Bois (the European Confederation of woodworking industries) in 2003. The study was launched with the aim of producing an updated analysis of the key factors and challenges affecting European woodworking industries; identifying the opportunities for the sector; describing the ideal position; and producing an action programme (http://www.cei-bois.org).

[ii] SE is also applicable in smaller firms, but it is used only in the context of large companies in this study.

[iii] Volberda (2004) analyses all these approaches under the label of the dynamic-capabilities school. Helfat and Peteraf (2003) include all organisational capabilities, 'dynamic' or otherwise, in a dynamic resource-based view.

[iv] As Wikström and Normann (1994) note, competence is primarily associated with individuals, but the idea can be extended to organisations. In this study, the specific term 'core competences' (also 'distinctive competences') is reserved for non-product-centric capabilities that bring value to the customer and span multiple lines of product markets (Grant 1998, Teece et al. 1997, Hamel and Prahalad 1996, Prahalad and Hamel 1990). As Hamel and Prahalad (1996) note, it is highly unlikely that a core competence would be tied

to one person or a small team. Thus, core competences are the complex and deeply organisationally embedded subset of capabilities that involve multiple lines of company functions, and bind many levels of people (Grant 1996b). The adjective used to modify the basic term centres attention on not only what a firm can do, but what it can do better than its competitors (Grant 1998). Accordingly, core competences are always valued relative to other firms, since they utilise the asymmetries discovered between the company and its competitors (Hamel and Prahalad 1996).

[v] Process (Lat. processus - movement) is defined in this study as a naturally occurring or designed sequence of activities, possibly taking up time, space, expertise or other resources, performed to achieve some goal (Becker 2004).

[vi] Capabilities are also defined as resource bundles, i.e. configurations between resources (Galunic and Rodan 1998). This is a more static definition, a 'snapshot' of the ongoing integrative process.

[vii] According to the information-processing school of thought, more organisational learning occurs when more and more varied interpretations are developed, and when more organisational units develop uniform comprehension of the various interpretations (Huber 1991)

[viii] A capability life cycle similar to the one described by Helfat and Peteraf's (2003) has been applied to research on a firm's marketing capabilities (Vorhies et al. 1999).

[ix] Integration also explains hierarchies of capabilities: they are integrated through integrating specialist knowledge (Grant 1996b). At the highest level are those that require wide-ranging cross-functional integration.

[x] This thinking has clear connections with that of Hamel and Prahalad (1990), who define competence as a combination of technology, governance process and collective learning. In this study the components are, respectively, technical systems, organisational design and the resource-bundling process. A similar approach is also advocated by Taatila (2004).

[xi] A successful company also needs to be competitor-oriented. The emphasis on customer orientation as evident in this study may partly result from the fact that obtaining knowledge of current and future customers is easier than finding out about competitors.

[xii]An interesting and promising exception is in Central Europe, where large panel-industry companies have created mill clusters involving co-operation over firm boundaries, on both the formal and most importantly, the informal level.

[xiii] The scales developed from items used by Caruana et al. (1998), McCabe (1987) and Ferrel and Skinner (1988) were used in the face-to-face semi-structured interviews during the third phase of the study, and the results were discussed with the informants.

[xiv] Such as the 'competence perspective', 'core competences', 'distinctive competencies', 'core capabilities', 'organisational capabilities', 'dynamic capabilities', 'the dynamic resource-based view', 'the knowledge-based view of the firm', 'organisational knowledge', 'knowledge assets', 'organisational skills' and 'routines'.